WipeDrive™ & WipeDrive PRO™
Quick Start Guide

2-6

WhiteCanyon™
S O F T W A R E

WipeDrive User Guide

1. INTRODUCTION

1.1 Purpose

WipeDrive will securely erase everything stored on a hard disk, including all installed software programs, operating systems, formatting, partition tables, viruses, all file data, personal data, boot record information, etc. After running WipeDrive, the disk will need to be repartitioned and formatted for reuse. *See 6. Reinstalling Windows.*

1.2 System Requirements

WipeDrive will run on any IBM PC compatible computer that has a keyboard, monitor, and either a CD-ROM drive or a floppy diskette drive. It runs independently of the operating system installed on the computer.

2. BEFORE WIPING (READ FIRST)

2.1 Important Windows Note

PLEASE NOTE:
WIPEDRIVE WILL ERASE ALL OF THE FILES AND THE OPERATING SYSTEM OF THE COMPUTER. YOU WILL NEED TO REINSTALL YOUR OPERATING SYSTEM AFTER USING WIPEDRIVE IF YOU INTEND TO KEEP USING THE COMPUTER.

REMEMBER TO BACK UP ANY FILES YOU WANT TO KEEP BEFORE WIPING THE COMPUTER.

2.2 Before Wiping Failing Drives

Please note that there is no way of guaranteeing that a drive can be wiped 100% if the drive hardware is malfunctioning; WipeDrive checks for these anomalies automatically. However, if the hardware is severely malfunctioning, these anomalies cannot be reliably detected and in rare cases WipeDrive can report 'success' even though the drive failed to wipe correctly.

You can generally detect this problem in any of these three ways:

1) The drive will make abnormal sounds such as loud humming, grinding, or clicking noise.

2) The drive itself will heat up quickly, being hotter to the touch than normal.

3) A drive should wipe in approximately 2-4 minutes per GB of hard drive space. If it takes a significantly longer or shorter amount of time to complete the wipe, then the drive is suspect and should be investigated further or physically destroyed and discarded.

3. GETTING STARTED

WIPEDRIVE WILL NOT RUN FROM WITHIN WINDOWS; IT MUST BE LAUNCHED DURING THE BOOT PROCESS WHEN THE COMPUTER IS TURNED ON.

You can run WipeDrive from either a CD or floppy diskette. To use the WipeDrive CD, *see 3.1 Booting WipeDrive from the CD-ROM drive*. To run WipeDrive from a floppy diskette drive, *see 3.2 Booting from a WipeDrive diskette.*

3.1 Booting WipeDrive from the CD-ROM drive

Insert the WipeDrive CD into the CD-ROM drive and then restart the computer. WipeDrive should start automatically and you will see a black screen with a menu of options 1 through 8.   For further details on using WipeDrive, *see 4.1 Wiping a Hard Drive.*

NOTE: If Windows still starts up normally, then the computer is set to boot from the hard drive before booting from the CD-ROM drive. Changing the computer's boot order is easy to do. *See 3.4 How to Change the Computer's Boot Order.*

3.2 Booting from a WipeDrive Diskette

If you do not have a CD-ROM or you choose to wipe using the floppy drive, then you will need a WipeDrive floppy diskette. If you do not have a WipeDrive diskette already created, *see 3.3 How to Create a WipeDrive Diskette*.

Insert the WipeDrive diskette into the floppy drive and restart the computer. WipeDrive should automatically run and you will see a black screen with a menu of options 1 through 8.   For further details on using WipeDrive, *see 4.1 Wiping a Hard Drive.*

NOTE: If Windows still starts up normally, then the computer is set to boot from the hard drive before booting from the floppy drive. Changing the computer's boot order is easy to do. *See 3.4 How to Change the Computer's Boot Order.*

3.3 How to Create a WipeDrive Diskette

To create a WipeDrive floppy diskette from the CD, you can follow these instructions:

1) Boot up (as usual) into Windows
2) Insert the WipeDrive CD into the CD-ROM drive.
3) Click on the 'Start' button from the Windows taskbar
4) Select 'Run' from the 'Start' Menu.
5) Type 'D:\launch' (where D is the CD-ROM drive letter). Then press 'OK'.

6) The yellow WipeDrive launcher screen will appear.

7) Click on the 'Get Started' button at the top.

8) Insert a new floppy diskette into the a:\ floppy diskette drive and follow the onscreen instructions to make a WipeDrive diskette.

If you purchased WipeDrive online, then you should already have been given a link to download the WipeDrive diskette creator program. When the download is complete, double click the file and follow the onscreen instructions to make a WipeDrive floppy diskette.

3.4 How to Change the Computer's Boot Order

Some computers are configured to ignore the CD-ROM (or floppy diskette) drive when they boot up. In this case, to use WipeDrive, you will need to switch the computer's boot order.

NOTE: **ALL** hard drive wiping software that securely erases the entire drive **MUST** have the user perform this step to change the boot order.

To set the computer to start WipeDrive from the CD (or floppy diskette), change the 'boot order' setting in the computer's setup utility called the BIOS.

The BIOS is the computer's configuration utility. It holds information such as what device to use first to boot the computer, as well as other hardware settings. Unfortunately, computer manufacturers have not agreed on a standard for how to enter the system BIOS.

To enter the computer's setup utility (BIOS):

1. Restart the computer.

2. Watch the screen for some text that says something similar to "Press X to Enter Setup". Notice which key it tells you to use.

3. Press this key immediately and repeatedly.

4. This should open the computer's configuration utility (BIOS).

5. If the Windows Logo appears it is too late; restart the computer and try again.

 (NOTE: The most common keys are the 'F2' key or the 'DEL' key.)

If you do not see the message giving the proper keystroke to enter the BIOS, then press the 'F2' key repeatedly immediately after restarting the computer. This should open the BIOS. If Windows starts up (as usual), turn off the computer and try again using the 'Delete' or 'F1' key.

We have collected some of the other keys and key combinations used by manufacturers to access the BIOS on various computers.

Computer Model	BIOS Keys
Acer®	F1, F2, CTRL+ALT+ESC
AST®	CTRL+ALT+ESC, CTRL+ALT+DEL
Compaq® 8700	F10
CompUSA®	DEL
Cybermax®	ESC
Dell® 400	F3, F1
Dell Dimension®	F2 or DEL
Dell Inspiron®	F2
Dell Latitude	Fn+F1 (while booted)
Dell Latitude	F2 (on boot)
Dell Optiplex	DEL
Dell Optiplex	F2
Dell Precision™	F2
eMachine™	DEL
Gateway® 2000 1440	F1
Gateway 2000 Solo™	F2
HP®(Hewlett-Packard)	F1, F2
IBM®	F1
IBM E-pro Laptop	F2
IBM PS/2®	CTRL+ALT+INS after CTRL+ALT+DEL
IBM Thinkpad® (newer)	Start | Programs | Thinkpad CFG
Intel® Tangent	DEL
Micron™	F1, F2, or DEL
Packard Bell®	F1, F2, DEL
Sony® VIAO	F2, F2
Tiger	DEL
Toshiba® 335 CDS	ESC
Toshiba Protege	ESC
Toshiba Satellite 205 CDS	F1
Toshiba Tecra	F1 or ESC

Once you have entered the BIOS setup utility:

1. Look for a setting that says 'Boot Order' or 'Boot Sequence'.

2. Use the arrow keys on the keyboard to navigate to the Boot setting (the mouse will not function while in the BIOS).

3. Change the boot setting so that the CD-ROM drive (or floppy diskette drive) is listed before the hard drive [HDD-0 or Local Disk (C:)].

4. After making the change, save and exit the BIOS. Often this can be done by pressing the 'ESC' key, and following the prompts to save changes.

5. Insert the WipeDrive CD (or floppy diskette) and restart the computer.
   See 4.1 Wiping a Hard Drive.

3.5 Enabling and Disabling Drives

Newer computers often have a BIOS feature to 'enable' or 'disable' devices in the boot order list. It is important that the CD (or floppy) drive be enabled for WipeDrive to wipe the drive. Even if the boot order is properly set to boot from CD (or floppy diskette) before the hard drive, and the CD (or floppy) is a valid copy, WipeDrive will only run if the CD (or floppy) drive is 'enabled' in BIOS.

3.6 USB Keyboard Issues

Some computers have a USB keyboard instead of the standard ps/2 (serial) keyboard. If using a USB Keyboard and WipeDrive does not respond when selecting from the menu options, then the computer needs to be configured to use a USB keyboard in the BIOS. This is more common with older computers. (If the computer is old enough, it will not have an option to allow you to run WipeDrive with a USB keyboard.)

To change the computer's USB-Legacy BIOS configuration:

1) Re-enter the BIOS

2) Look for a setting called 'Legacy USB Support' or 'Legacy Keyboard Device'

3) Set this feature to 'ON'.

4) Save the BIOS settings and exit.

(Additional instructions *see 3.4 How to Change the Computer's Boot Order.*)

This will enable USB Keyboard to work with WipeDrive. Older computers that do not have this setting must use a ps/2 standard keyboard in order to wipe.

4. USING WIPEDRIVE

WipeDrive begins when the computer boots up with the WipeDrive diskette or CD already in the CD Tray. If you do not see the WipeDrive main menu, then please see section *3 Getting Started* above.

4.1 Wiping a Hard Drive

1. Select option '1' from the WipeDrive main menu. The physical drives will be listed numerically, starting at 'Drive #0' for the primary hard drive, 'Drive #1' for the second, etc.

   (Please note that when you select to wipe a physical hard drive, you will be wiping all of the partitions on it. Physical hard drives can be separated into sections called logical partitions. These partitions show up in Windows as drive letters such as C: and D:. Multiple partitions such as C: and D: can exist on the same physical hard drive. Wiping the drive will remove logical partitions such as C: and D: completely. If you need to wipe only a single partition, you can use the MediaWiper product, found at http://www.WhiteCanyon.com).

2. Select the drive to wipe or select the option to wipe all drives.

3. Choose the number of overwrites to perform. One 'Standard overwrite' (wipe option 1) is thoroughly sufficient for newer computers. If the computer is more than 6 years old, we recommend performing the 'DoD 5220.22-M' (wipe option 2) wipe, which is three passes and a complete verify.

4. Answer yes "Y" to the two confirmation prompts to begin the wiping process.

4.2 Verifying that the Disk is Clean

To verify that the drive is clean, select options 2, 3, or 4 from the main menu, described below. Verifying is optional and does not affect wiping. A full verify (verify option 2) takes considerably longer than a quick verify (verify option 3).

> Option 2 is a Full Verify. WipeDrive will check every sector on the drive for un-erased data.

> Option 3 is a Quick Verify. WipeDrive will spot check the drive for un-erased data.

> Option 4 allows you to manually select and view specific sectors on the drive, and displays any data found in hexadecimal and ASCII formats (for advanced users).

4.3 Disk Errors

If WipeDrive reports errors during a wipe or verification, WipeDrive is encountering some issue reading or writing to the drive. This generally means the drive is beginning to fail. If errors are encountered, we recommend re-booting the computer and starting the

wipe process again. If errors persist, and you decide to keep using the drive in the future, we highly recommend backing up important data immediately and often, as the drive could fail further or completely at any time. *Also see, 2.2 Before Wiping Failing Drives.*

4.4 Log Files

You can create and save event logs of wiping sessions when using the WipeDrive CD or floppy diskette to wipe drives.

The log file can be turned on/off and configured from the main WipeDrive menu 'Configure WipeDrive' (option 6). When prompted for the log path, floppy versions should be configured to use 'A:', and CD versions must be set to use 'B:'.

When fully configured, WipeDrive has the ability to log the following 12 items:

1) WipeDrive version number
2) Drive model information
3) Serial number of physical drive
4) Current User (user-defined, name of person performing the wipe)
5) Computer ID (user-defined, name of the drive or system)
6) Type of operation performed
7) Number of overwrites performed
8) Date & Time operation was completed
9) Total elapsed time (HH:MM:SS)
10) Operation Result (Success or Failure)
11) Total number of disk sector read/write errors, if any
12) Total uncleaned or unreadable disk sectors, if any

The log is found on the floppy diskette, with the filename: 'LOG.TXT'. A special delimited log is also created on the floppy diskette with the filename: 'LOGDEL.TXT' for those who desire to maintain their logs in a database. When logging is turned on, additional wipes will append the new data to the end of an existing log file.

5. CREATING A CUSTOM OVERWRITE

5.1 What is a Custom Overwrite?

A 'Standard Overwrite', (wipe option 1) is thoroughly sufficient for data privacy concerns. WipeDrive also provides the additional capability to customize the number and type of wipes for companies and government agencies required to meet specific standards. *See section 7.2 Patterns of Wipe Level Definitions.*

5.2 Why Perform a Custom Overwrite?

WipeDrive has many overwriting patterns preconfigured for ease of use, including the generally accepted standard for the US Department of Defense, 'DoD 5220.22-M' (wipe option 2). *See section 7.2 Patterns of Wipe Level Definitions.* However, some government agencies have developed their own overwriting patterns. WipeDrive's custom overwrite function was created for this purpose.

5.3 How to Perform a Custom Overwrite

Performing a 'custom' overwrite is available when using the WipeDrive diskette, and involves two steps:

1. Adding your custom pattern to the USRCLEAN.TXT file.

    The USRCLEAN.TXT file is where you specify your patterns. This file is located in the main folder of the WipeDrive Diskette. You can edit this file with Notepad. To run Notepad, select Start | Run, then enter "NOTEPAD" in the edit box, and then press 'OK'. Browse to the WipeDrive diskette and open the USRCLEAN.TXT file. If it is not there, you can create one.

    Once you have the file open for editing, you can specify your pattern. Each line in the file represents a single operation. The following are the possible operations:

    > overwrite [ch]
    > overwrite and verify [ch]
    > overwrite random
    > overwrite and verify random

    In place of [ch], you must specify a number from 0 to 255 which represents the byte (character) to be used in overwriting the disk for that operation (see The ASCII Table - http://www.WhiteCanyon.com/wipe-your-hard-drive-ascii.php).

    Specifying "random" as the character will cause random data to be written. Using "overwrite and verify" will cause WipeDrive to verify that the data was written correctly to disk.

    As an example, a 'DoD 5220.22-M' standard cleaning (wipe option 2) could be written in USRCLEAN.TXT as follows:

    > overwrite 0
    > overwrite 255
    > overwrite and verify random

    The first line will overwrite the entire drive once with the character 0.

    The second line will overwrite the entire drive with the character 255.

    And the last line will overwrite the entire drive with random characters and also verify that the operation completed successfully.

2. Selecting the custom overwrite option.

> After you have your pattern created, you can select to perform a custom overwrite when you wipe a drive.

6. REINSTALLING WINDOWS

The most updated instructions for reinstalling Windows can always be found online at: http://www.WhiteCanyon.com/wipedrivehelp

6.1 A Note about Donating Computers

If you are donating a computer, it is not necessary to install Windows after wiping the hard drive with WipeDrive. It is almost always the case that an operating system will be installed by the organization receiving the computer. Installing Windows can take several hours.

If you would like to increase the value of the donation, donate the Windows install CD with the computer. This will allow for a tax deduction for the value of the software and the computer.

6.2 Reinstalling Windows from a Manufacturer's System Restore Disk

Due to the fact that there are dozens of computer manufacturers, the following instructions may not correspond exactly to your particular restore CD. This information is provided as an aid and we recommend following your computer manufacturer's instructions. These instructions can usually be found on your computer manufacturer's web site.

Because WipeDrive completely deletes the partition table of the hard drive, you may need to re-create it before using the restore CD. Most restore disks do this for you. If you get an error about not being able to format then you will need to perform the following steps to recreate the partition table and format.

Creating a Startup Diskette

1) Download and save the following program to your desktop.

   http://support.whitecanyon.com/makestartupdiskette.exe

   (Do not save the file directly to a diskette.)

2) After saving the file, double click on it to run the disk creation program.

3) Insert a blank diskette into the drive and follow the prompts to create a startup diskette.

<u>Creating a new partition table</u>

1) Insert the Startup Diskette into the computer and restart.

2) When prompted, select the option to start the computer with CD-ROM support.

3) After a minute or so, you will see an "A:>" prompt.

4) Type "fdisk" and then press Enter.

5) If asked to enable large disk support, select 'Y' for Yes. (Note: Some versions of Windows 95 may not be compatible with large disk support. Select N here if it does not support the FAT32 file system.)

6) Select Option #1 - Create DOS partition or Logical DOS Drive.

7) Select Option #1 - Create Primary DOS Partition.

8) The drive integrity will be verified.

9) Unless you are planning to make multiple partitions, select Y when asked if you want to use the maximum available size for the partition and to make the partition active.

10) The drive integrity will be verified again.

11) Press the Esc key to exit fdisk.

12) Your hard drive is now partitioned and ready to install the operating system.

13) Remove the startup diskette from the computer and insert the manufacturer's system restore disk.

14) Restart the computer and follow the instructions shown on the screen.

6.3 Reinstalling Windows XP/2000

To reinstall Windows 2000 or XP, you will need your Installation CD and your Authentic Windows Activation Key Code.

Note: Windows XP requires more computer resources than Windows 95, 98, or Me. If your system originally had one of these versions of Windows installed, consult the Hardware Compatibility list at Microsoft.com to see if your system can support Windows 2000 or XP.

<u>Windows XP/2000 Reinstallation</u>

1) Insert the Windows installation CD into the CD drive. Make sure there are no other disks in the computer and restart.

2) At the "Welcome to Setup" screen, press the Enter key to set up Windows.

3) Press the C key to continue setup.

4) Press the F8 key to agree to the license.

5) Press the C key to create a partition.

6) Enter the size of the partition, or just press the Enter key to use maximum size.

7) Select the "New (Unformatted)" option, and press the Enter key.

8) Select NTFS or FAT file system (select NTFS if you are unsure).

9) Simply follow the prompts to install Windows.

6.4 Reinstalling Windows 98/95/ME

Creating a Startup Diskette

1) Download and save the following program to the desktop.

   http://support.whitecanyon.com/makestartupdiskette.exe

   (Do not save the file directly to a diskette.)

2) After saving the file, double click on it to run the disk creation program.

3) Insert a blank diskette into the drive and follow the prompts to create a startup diskette.

Windows 98/95/ME Reinstallation

1) Once you have the Startup Diskette, insert it into the floppy drive and restart the computer

2) Select the option to start the computer with CD-ROM support.

3) After a minute or so, you will see "A:/>".

4) Type "fdisk" and press Enter.

5) If asked to enable large disk support, select 'Y' for Yes. (Note: Some versions of Windows 95 may not be compatible with large disk support. Select N here if it does not support the FAT32 file system.)

6) Select Option #1 - Create DOS partition or Logical DOS Drive.

7) Select Option #1 - Create Primary DOS Partition.

8) The drive integrity will be verified.

9) Unless you are planning to make multiple partitions, select Y when asked if you want to use the maximum available size for the partition and to make the partition active.

10) The drive integrity will be verified again.

11) Press the Esc key to exit fdisk.

12) Without removing the floppy disk, press the reset button on the computer or press and hold the keys Ctrl then Alt then Delete and release them together. This will restart the computer.

13) Again, select the option to Start the computer with CD-ROM support.

14) When you see A:>, directly above it is a message about your CD-ROM drive. It will tell you the letter assigned to the CD-ROM drive, take note of it. The screen will look something like this:


```
MSCDEX Version 2.25
Copyright (C) Microsoft Corp. 1986-1995.
        Drive E: = Driver MSCD001 unit 0
```

15) At the A:>, type "format C:" and press Enter.

16) Select Y when asked if you want to proceed with the format.

17) The format will take some time, depending on the size of the hard drive.

18) You will be asked to choose a Volume Label, which is a name for your hard drive. It has no effect on the operation of the computer; you may choose any name you like.

19) Place the Windows Install CD into the CD-ROM drive.

20) Type "E:" (where E is the letter assigned to the CD-ROM drive, refer to step 14 above) and press the Enter key.

21) Type "SETUP" and press the Enter key to begin the Windows ME setup program. Or, for 98/95:

   a) Type "dir" and press Enter. You will see something like the following:

   Volume in drive E is 020409_1121
   Directory of E:
   WIN98_SE   <DIR> 04-09-02 11:21a
       0 file(s)   0 bytes
       1 dir(s) 0 bytes free

   b) WIN98_SE is a directory, as indicated by the "<DIR>" after it.

   c) Type "cd WIN98_SE", replacing WIN98_SE with the result from step 21 above, then press the Enter key.

   d) Type "dir" and press the Enter key.

   e) If you see SETUP somewhere in the output, then type "cd SETUP" and press the Enter key. Otherwise, skip this step.

   f) Type "SETUP" and press the Enter key to begin the Windows 98 setup program.

22) Remove the Windows Startup Diskette, and follow the prompts to install Windows

7. COMMAND LINE PARAMETERS

WipeDrive can be run from the command line using the following optional parameters below. When at the DOS prompt, typing 'wipedrv' with no parameters will start the standard menu-driven WipeDrive program.

7.1 Command Line Usage

Usage:
WIPEDRV [[/D] | [drive number] [/U] [/V | /QV] | [drive number] [/U] [/L1 … /Ld]]

drive number	Drive 0 is the first physical drive, drive 1 is the second drive. Use -1 to wipe all physical drives.
/U	Set the current user's name.
/D	Display current drives.
/V	Verify that all drive sectors are clean.
/QV	QuickVerify that a drive is clean (faster).
/L1 … /Ld	Select the type of wipe (number of overwrites)

Wipe Level Name List:

  /L1 = Single Overwrite (RECOMMENDED)
        (Recommended for most security needs.)
        Note: Overwriting data once will make it impossible for
        anyone to recover your data using any software program.
  /L2 = DoD 5220.22-M (1 Verify)
  /L3 = HMG IS5 Baseline
  /L4 = HMG IS5 Enhanced
  /L5 = Canadian OPS-II
  /L6 = US Army AR380-19
  /L7 = US Air Force 5020
  /L8 = German VSITR
  /L9 = NAVSO P-5239-26
  /La = NCSC-TG-025
  /Lb = Russian GOST P50739-95
  /Lc = DoD 5220.22-M (3 Verify)
  /Ld = Custom

Examples:
     A:\>WIPEDRV 0 /L2
             Wipe physical disk #0 by performing 3 overwrites and one verify.
     A:\>WIPEDRV 0 /V
             Search physical disk #0 and report any unwiped file data.

7.2 Patterns of Wipe Level Definitions

Each wipe pattern adheres to a specific approved standard, including official government and military standards in use today. Specific patterns such as all 'ones' and all 'zeros' are used in various wipe standards as defined below. Some wipes are designed to use random data, or to include full verification of each character written.

Type	Wipe Standard	Wipe Pattern						
		1st Pass	2nd Pass	3rd Pass	4th Pass	5th Pass	6th Pass	7th Pass
L1	Single Overwrite	0's						
L2	DoD 5220.22-M (1 Verify)	0's	1's	R with FV				
L3	HMG IS5 Baseline	0's with FV						
L4	HMG IS5 Enhanced	0's	1's	R with FV				
L5	Canadian OPS-II	0's	1's	0's	1's	0's	1's	R with FV
L6	US Army AR380-19	UD	IUD					
L7	US Air Force 5020	1's	0's	UD				
L8	German VSITR	0's	1's	0's	1's	0's	1's	A's
L9	Navso P-5329-26	0's	1's	R with FV				
La	NCSC-TG-025	0's	1's	R with FV				
Lb	GOST P50739-95	R						
Lc	DoD 5220.22-M (3 Verifies)	0's	FV	1's	FV	97's	FV	
Ld	Custom Wipe	UD	(UD)	(UD)	(UD)	(UD)	(UD)	(UD)

Key

0's	Write logical 0's this pass		UD	Write a user defined character this pass
1's	Write logical 1's this pass		IUD	Write inverse of user defined character this pass
A's	Write the character A this pass		(UD)	Write a user defined character this pass (Optional)
97's	Write the number 97 this pass			
R	Write random characters this pass		FV	Run a Complete Verify on the drive

Detailed Wipe Level Definitions (/L1 … Ld):

/L1 = Standard Overwrite (RECOMMENDED)
   Pass 1 – Write 'Zeros' (0x00)

/L2 = Department of Defense 5220.22-M (1 Verify)
   Pass 1 – Write 'Zeros' (0x00)
   Pass 2 – Write 'Ones' (0xFF)
   Pass 3 – Write Random Data (0x??) with Verification

/L3 = HMG Infosec Standard #5 – Baseline (HMG IS5 Baseline)
   Pass 1 – Write 'Zeros' (0x00) with Verification

/L4 = HMG Infosec Standard #5 – Enhanced (HMG IS5 Enhanced)
   Pass 1 – Write 'Zeros' (0x00)
   Pass 2 – Write 'Ones' (0xFF)
   Pass 3 – Write Random Data (0x??) with Verification

/L5 = Canadian RCMP TSSIT OPS-II Standard Wipe (Canadian OPS-II)
   Pass 1 – Write 'Zeros' (0x00)
   Pass 2 – Write 'Ones' (0xFF)
   Pass 3 – Write 'Zeros' (0x00)
   Pass 4 – Write 'Ones' (0xFF)
   Pass 5 – Write 'Zeros' (0x00)
   Pass 6 – Write 'Ones' (0xFF)
   Pass 7 – Write Random Data (0x??) with Verification

/L6 = US Army AR380-19 (AR380-19)
   Pass 1 – Write 'Zeros' (0x00)
   Pass 2 – Write 'User-Defined Character' (0x##)
   Pass 3 – Write 'Inverse of User-Defined Character' (-0x##)

/L7 = US Air Force System Security Instructions 5020 (US Air Force 5020)
   Pass 1 – Write 'Zeros' (0x00)
   Pass 2 – Write 'Ones' (0xFF)
   Pass 3 – Write 'User-Defined Character' (0x##)

/L8 = German VSITR (German VSITR)
   Pass 1 – Write 'Zeros' (0x00)
   Pass 2 – Write 'Ones' (0xFF)
   Pass 3 – Write 'Zeros' (0x00)
   Pass 4 – Write 'Ones' (0xFF)
   Pass 5 – Write 'Zeros' (0x00)
   Pass 6 – Write 'Ones' (0xFF)
   Pass 7 – Write 'Specific Pattern AA' (0xAA)

/L9 = Navy Staff Office Publication P-5329-26 (NAVSO P-5239-26)
    Pass 1 – Write 'Zeros' (0x00)
    Pass 2 – Write 'Ones' (0xFF)
    Pass 3 – Write Random Data (0x??) with Verification

/La = National Computer Security Center TG-025 (NCSC-TG-025)
    Pass 1 – Write 'Zeros' (0x00)
    Pass 2 – Write 'Ones' (0xFF)
    Pass 3 – Write Random Data (0x??) with Verification

/Lb = Russian GOST P50739-95 (GOST P50739-95)
    Pass 1 – Write Random Data (0x??)

/Lc = Department of Defense 5220.22-M (3 Verifies)
    Pass 1 – Write 'Zeros' (0x00) with Verification
    Pass 2 – Write 'Ones' (0xFF) with Verification
    Pass 3 – Write 'Specific Pattern 97' (0x97) with Verification

/Ld = Custom
    Pass 1 – Write 'User-Defined Character' (0x##)
    (Additional passes may also be set)

8. WIPEDRIVE PRO (This Section is for WipeDrive PRO Version Only)

WipeDrive PRO is identical to WipeDrive in the above sections. However WipeDrive PRO provides a significant increase to performance and functionality. The primary difference is that WipeDrive PRO is built using a Linux environment as opposed to DOS used in WipeDrive. Other differences are detailed in the following sections.

8.1 Boot Menu Options

WipeDrive PRO looks and starts the same way as WipeDrive; however PRO gives 3 additional boot options when first started. You can select from the following menu:

> Boot Options:
> 1. WipeDrive in Linux (simple hardware detection)
> 2. WipeDrive in Linux (extra hardware detection)
> 3. WipeDrive in DOS

Option 1 is the default option and usually the best choice for WipeDrive PRO users who are wiping any version of Windows or Linux based computers.

Option 2 provides support for additional hardware that option 1 may not have, however this will take more time to boot up the program.

Option 3 runs on the DOS operating system and can be used if options 1 and 2 ever do not function with a specific computer. NOTE: the DOS version wipes slower than the Linux.

8.2 WipeDrive vs. WipeDrive PRO Comparison

The following chart shows the primary benefits of WipeDrive and WipeDrive PRO. Both programs contain all the tools needed to securely wipe personal home computers.

However, WipeDrive PRO gives professionals the highest level of hardware support, fastest wiping speeds, and unlimited licensing as necessary for business computing needs. Site licenses are also available, *see section 9. Technical Help and Contact Information.*

Feature description	WipeDrive PRO	WipeDrive
Erases hard drive data including partitions, formats, and file data.	✔	✔
Supports multiple overwriting erase drive patterns.	✔	✔
Listed as an Approved Disk Sanitizing Tool by the U.S. Department of Defense.	✔	✔
Erases any size hard drive (IDE or SCSI).	✔	✔
Logs all "erase and verify" operations, including any drive errors.	✔	✔
Boots from a diskette or CD to erase hard drives.	✔	✔
Erases hard drives with optional command line parameters.	✔	✔
Includes MediaWiper to erase partitions, USB drives, memory cards, diskettes, zip disks, etc all from within Windows.	✔	✔
Enhanced erase hard drive support for SCSI and RAID servers.	✔	-
Enhanced erase hard drive support for serial ATA drives.	✔	-
Enhanced hardware communication to decrease erase times by 200-400%.	✔	-
Erases hard drives on **1 to 20 computers** an unlimited number of times providing that the software is not run on more than one machine at the same time.	-	✔
Erases hard drives on an **unlimited number of computers** an unlimited number of times providing that the software is not run on more than one machine at the same time.	✔	-

8.3 Performance - Wipe Speeds

The time it takes for WipeDrive and WipeDrive PRO to complete a wipe is not dependent on what data exists on the drive. For example, an empty hard drive will wipe at the same speed as a drive completely full of data. A pass of writing random characters will take more time as each character must be individually generated.

Wipe times are not largely dependent on CPU speeds either. Newer hard drives contain technology that will usually speed up the time it takes to complete a wipe. (For example: a 7200 RPM drive will wipe faster than a 5400 RPM drive.)

WipeDrive PRO is usually 200-400% faster than WipeDrive. The following are sample wipe times of a Standard Overwrite single pass wipe:

	6 Gig Drive	13 Gig Drive	40 Gig Drive
WipeDrive	25 Minutes	57 Minutes	1 Hour 47 Minutes
WipeDrive PRO	9 Minutes	17 Minutes	16 Minutes

Drive Size	Standard Overwrite (1 Pass)			DoD 5220.22-M (3 Pass - 1 Verify)			Full Verification		
	DOS	Linux	% Faster	DOS	Linux	% Faster	DOS	Linux	% Faster
2.1 G	9:35	6:47	141%	49:38	29:33	168%	10:30	6:53	153%
6.4 G	25:34	9:13	277%	132:00	53:16	248%	31:05	9:11	338%
14 G	57:00	17:00	335%	210:00	180:00	117%	65:15	22:57	284%
40 G	107:25	16:51	637%	662:00	148:25	446%	21:58	19:32	112%

8.4 Extended Features

In addition to faster wipe speeds and unlimited licensing, WipeDrive PRO's two Linux builds provide additional features. WipeDrive PRO Linux versions allow 'custom overwrites' when using the CD. (The PRO DOS and non-PRO WipeDrive version do not, However all WipeDrive floppy versions allow custom wipes.)

WipeDrive PRO Linux versions also provide extended hardware support to recognize and run on more SATA, SCSI, and RAID system configurations.

9. TECHNICAL HELP AND CONTACT INFORMATION

If you have questions not found in this manual, you can contact us for answers.

For Technical Assistance

Please visit: http://www.WhiteCanyon.com/wipedrivehelp

or email: support@WhiteCanyon.com

For Sales and Licensing Information

email: info@WhiteCanyon.com