



BCWipe Total WipeOut

Help File



Introduction

When you delete sensitive files from a disk on your computer, the operating system does not erase contents of these files from the disk - it only deletes 'references' to these files from filesystem tables. Contents of the deleted file (or file's body) remain on the disk and can be easily recovered using any disk tool utility.

Wiping is a term used to describe a process of shredding contents of a file or disk space. It is impossible to restore any data that has been properly wiped.

BCWipe Total WipeOut utility is designed for quite specific purposes, mainly for government agencies, banking and large corporations, where there is a need in safe destroying contents of hard drives before computers can be got away from the companies. BCWipe Total WipeOut is a powerful utility designed as a command-line program to minimize size of executable, avoid special installation procedures, hence, to provide a fast way for wiping disks on large number of computers without wasting time on installation the program on every computer separately.

Wiping a whole hard drive (or all hard drives) on the computer with BCWipe Total WipeOut is a simple procedure. You boot computer using **BCWipe Total WipeOut bootable disk (CD or USB)** and after confirming the operation will get the wiping process running. It is also possible to run BCWipe Total WipeOut with command-line parameters.

BCWipe Total WipeOut distributive includes ISO image used to burn the BCWipe Total WipeOut **bootable CD disk**. Since version 2.20 BCWipe Total WipeOut can create **bootable USB disk** as well. Before burning the ISO image to CD disk or creating bootable USB disk you can configure functionality of BCWipe Total WipeOut according to your requirements with the help of **BCWipe Total WipeOut Configuration Wizard** program.

BCWipe Total WipeOut is a powerful utility, which allows using US DoD 5220.22-M standard and Peter Gutmann wiping scheme (read about Peter Gutmann wiping scheme in the [Secure Deletion of Data from Magnetic and Solid State Memory](#) article). As well you can use your own customized wiping scheme to shred sensitive information from hard drives installed on computer.

Main Features of BCWipe Total WipeOut

Main features of the BCWipe Total WipeOut:

- The utility is able to destroy contents of whole hard drives, including partition tables, boot records, filesystem structures, operating system files and user files.
- BCWipe Total WipeOut can wipe storage on following hardware platforms, regardless of operating system installed on the computer
 - x86-compatible systems with BIOS or EFI
 - x64-compatible systems with BIOS or EFI
- BCWipe Total WipeOut can wipe all hard drives on the computer including the one where operating system is installed.
- Contents of hard drives are wiped regardless of filesystem used to format the drives (FAT, NTFS, HPFS or other).
- BCWipe Total WipeOut can wipe IDE, SATA, USB, Firewire, SAS, SCSI hard drives.
- BCWipe Total WipeOut supports following wiping schemes:
 - U.S. DoD 5220.22-M(ECE)
 - U.S. DoD 5220.22-M(E)
 - U.S. DoE M 205.1-2
 - U.S. Army AR380-19
 - NAVSO P-5239-26 (MFM)
 - NAVSO P-5239-26 (RLL)
 - Canadian RCMP TSSIT OPS-II
 - British HMG IS5 Baseline
 - British HMG IS5 Enhanced
 - German BCI/VSITR
 - Russian GOST R 50739-95
 - Bruce Schneier's 7-pass wiping scheme
 - Peter Gutmann's 35-pass wiping scheme
 - 1-pass random
 - 1-pass zero
- BCWipe Total WipeOut is designed to provide a high performance of shredding. Performance of write operations can be 80 MBytes/sec and more on modern hard drives. So seven pass wiping performance will be 12 MBytes/sec.
- BCWipe Total WipeOut can detect and reset **Host Protected Area** (HPA) on hard drives.
- BCWipe Total WipeOut defines number of sectors hidden by **Device Configuration Overlay** (DCO) functionality appeared since ATA-6 standard. BCWipe Total WipeOut can reset the DCO settings for hidden sectors.
- BCWipe Total WipeOut detects if a disk supports **ATA SECURITY ERASE** command and uses it for wiping.
- BCWipe Total WipeOut can write logs to
 - USB stick
 - Floppy disk

BCWipe Total WipeOut Specifications and Limitations

BCWipe Total WipeOut is distributed as a self-extracted installation program that can be run on computer with Windows operating system.

BCWipe Total WipeOut includes **Configuration Wizard** program for creating bootable USB disk and/or preparing ISO image. The image is used to burn bootable CD disk with BCWipe Total WipeOut wiping utility.

[BCWipe Total WipeOut Configuration Wizard](#) program runs on computers with Windows operating system.

BCWipe Total WipeOut bootable disk allows booting computer with any operating system earlier installed on the computer. BCWipe Total WipeOut wiping functions can be run automatically or manually on the computer.

BCWipe Total WipeOut supports following platforms:

- x86-compatible systems with BIOS or EFI: Intel or AMD based computers
- x64-compatible systems with BIOS or EFI: Intel or AMD based computers, Intel Macs

BCWipe Total WipeOut can wipe IDE, SATA, USB, Firewire, SCSI, SAS hard drives.

BCWipe Total WipeOut allows wiping sectors hidden by low-level **Host Protected Area (HPA)** and **Device Configuration Overlay (DCO)** functionality available for ATA drives when permitted by system firmware.

Using the BCWipe Total WipeOut

Using the BCWipe Total WipeOut

Running BCWipe Total WipeOut automatically

Running BCWipe Total WipeOut manually

ISO Configuration Wizard

Using the BCWipe Total WipeOut

BCWipe Total WipeOut is distributed as a BCWipe_total_wipeout.EXE self-extracted installation program that can be run on computer with Windows operating system.

BCWipe Total WipeOut installation program uses the standard Windows way to install software and provides all necessary explanations of the installation details. The only default information the user may want to change during installation is the Program Folder name for the BCWipe Total WipeOut software and the Destination Directory name where to place BCWipe Total WipeOut files.

In general the way of using BCWipe Total WipeOut is following:

1. After installation run **BCWipe Total WipeOut Configuration Wizard** from the BCWipe Total WipeOut program group. The Wizard will guide you through the process of creating BCWipe Total WipeOut bootable disk.
2. If you are going to boot your computer from CD-ROM drive - burn BCWipe Total WipeOut bootable CD using your favorite CD Burning software.
3. Insert the BCWipe Total WipeOut bootable disk (CD disk to CD-ROM, USB flash to USB port) and configure the computer to boot from CD-ROM or USB drive.
4. Reboot the computer and BCWipe Total WipeOut will run wiping using the options selected in **BCWipe Total WipeOut Configuration Wizard**.

Note that you can configure to start BCWipe Total WipeOut wipe operations either in automatic or in manual mode. In automatic mode no user intervention after boot-up is required.

BCWipe Total WipeOut bootable disk user interface

BCWipe Total WipeOut bootable disk main screen contains four areas, top-to-bottom:

- Header with program name and version and system clock
- The list of disks detected in a system
- Selected disk information/Log area
- Key shortcuts help

```
BCWipe Total WipeOut 2.30      Mon Jul 19 11:27:46 2010      www.jetico.com
1 ---- 536.8 MB VMware Virtual IDE Hard Drive
2 ---- 536.8 MB VMware Virtual S

Disk details
Dev name: sda
Capacity: 536.8 MB, 536870912 Bytes, 1048576 sectors
Model: ATA VMware Virtual IDE Hard Drive
Serial: 00000000000000000001 firmware: 00000001
Features: ATA/ATAPI-4 T13 1153D rev. 17

? -Help Tab-details/log M-menu S-select W-start wiping Space-view data
```

- Use Arrows to select a disk in the list of disks
- The [Tab] controls the disk information/log area mode:

BCWipe Total WipeOut 2.30	Mon Jul	BCWipe Total WipeOut 2.30	Mon Jul
1 ---- 536.8 MB VMware Virtual IDE Har		1 ---- 536.8 MB VMware Virtual IDE Har	
2 ---- 536.8 MB VMware Virtual S		2 ---- 536.8 MB VMware Virtual S	

Log	Disk details
11:57:13 INFO - CPU #1: AMD Athlon(tm) 6	Dev name: sda
11:57:13 INFO - Board : Intel Corporatio	Capacity: 536.8 MB, 536870912 Bytes, 10
None s/n: None	Model: ATA VMware Virtual IDE Hard D
11:57:13 INFO - BIOS : Phoenix Technolo	Serial: 0000000000000000000001 firmware
11:57:13 INFO - System: VMware, Inc., UM	Features: ATA/ATAPI-4 T13 1153D rev. 17
f2 aa 65 3c 1f b6-1d f5 23 71 8a 3c de 2	
11:57:13 INFO - Verification enabled	
11:57:13 INFO - DCO reset enabled	

- The [Space] key allow the user to view contents of the selected disk:

BCWipe Total WipeOut 2.30	Mon Jul 19 11:57:55 2010	www.jetico.com
1	VMware Virtual IDE Hard Drive	
2	Sector (0-1048575): 0 / Hex (0-FFFF): 0	
0000:	07 02 49 7E FC 09 DC EC 0F 2C 24 99 A8 F8 78 AF ..I~.....\$....x.	
0010:	9F F7 7D 72 DD 25 A4 94 8A 52 09 EA 6C 55 A4 AB ..}r.%...R..lU..	
0020:	86 60 2D 5B 57 55 4B 47 B4 F6 91 8E 94 8D D4 CB .'-[WURG.....	
0030:	D6 F0 9A 88 94 E6 A5 AE EB 50 A7 B0 75 47 D8 42P..uG.B	er.
0040:	FC 8B 54 94 3F 85 E0 79 25 29 50 5A 61 38 6B 22 ..T.?..y%)PZa8k"	
0050:	91 38 B4 8B F7 39 65 E5 91 97 15 39 F9 72 5F 36 .8...9e....9.r_6	
0060:	D7 7F E9 30 1D D6 71 1F 25 8F BC 7D 6D 71 06 8E ...0..q.%..}mq..	4d
0070:	52 99 0B 1F 23 6A 6D 99 4F F1 05 94 5F D2 61 FE R...#jm.O..._.a.	
0080:	C5 2A 59 E9 E2 FE 0F BC E1 CB E3 97 92 9E B0 40 .*Y.....@	
0090:	C9 9C 52 59 E2 F3 FD 0D 0B F7 86 68 60 2C 3C CB ..RY.....h',<.	
00A0:	DC 4B 26 04 EB 30 02 DD 9E 9B C7 27 88 F6 BC CC .K&..0.....'....	
00B0:	92 2A A0 F2 2F 76 A4 02 81 02 CC 6B D3 62 DC E0 .*.../v.....k.b..	
00C0:	D8 C5 F8 AB 48 32 3B E1 0C 5D 4E 0F 79 E1 AD EBH2;..lN.y...	
00D0:	5D 9C 16 AE C6 4D 05 A7 ED C1 F2 62 32 6B 1A 7E l...M.....b2k.~	
00E0:	40 EA E3 70 79 98 78 6E 89 CF DE E6 ED 94 E4 4F @...py.xn.....0	000
00F0:	1E 3C 20 33 95 3E 09 91 C3 81 AD DC AE CD FE 9A .< 3.>.....	
0100:	D0 68 C7 84 69 96 55 58 F2 62 6C 88 F2 5E 7D FF .h...i.UX.bl..^}.	
0110:	AB 54 A0 DE 26 16 8E AF 9F 11 62 67 49 CE 14 70 .T..&.....bgI..p	
0120:	98 E1 B1 B3 B9 F8 5F 57 47 B7 9B 31 70 89 9B 1AWG...1p...	
0130:	86 8D D1 9B 0B C9 33 A5 7E 2F CA 5F 7B C2 A8 F23.~/._{...	
0140:	5C 06 06 84 CB 1F 59 96 31 9F 3D 09 87 01 9A C3 \.....Y.1.=.....	

? PgUp/PgDn-Prev/Next Up/Dn-Scroll S-Select Q-Close a

See also:

- [Running BCWipe Total WipeOut automatically](#)
- [Running BCWipe Total WipeOut manually](#)
- [BCWipe Total WipeOut Configuration Wizard](#)

Running BCWipe Total WipeOut Automatically

As soon as you boot computer using **BCWipe Total WipeOut bootable disk**, BCWipe Total WipeOut can run wiping hard drives automatically.

Since recovering data after wiping hard drive is completely impossible, BCWipe Total WipeOut will display the confirmation dialog. The confirmation dialog is displayed during one minute. If you decide to start wiping immediately press **[Enter]** key. Any other key will cancel the wiping.

```
BCWipe Total WipeOut 2.30      Mon Jul 19 11:38:46 2010      www.jetico.com
 1 WIPE 536.8 MB VMware Virtual IDE Hard Drive
 2 WIPE 536.8 MB VMware Virtual S

- Log -
11:38:25 INFO - CPU #1: AMD Athlon(tm) 64 X2 Dual Core Processor 5000+
11:38:25 I      Confirm wiping
None s/n:
11:38:25 I      BCWipe Total WipeOut is about to start wiping.
11:38:25 I      BCWipe Total WipeOut may restart your system if required
f2 aa 65 3      after resetting DCO and/or HPA.
11:38:25 I      Please confirm wiping by pressing Enter.
11:38:25 I      When timeout elapses the task will start automatically.
11:38:25 I      Press any other key to cancel the task now.
11:38:26 I      0000000000
01 firmwar [00:55]Enter-Start Any other key-Cancel
11:38:26 INFO - Disk-sda: 536.8 MB, 536870912 Bytes
11:38:26 INFO - Disk-sr0: VMware IDE CDR10, s/n: n/a
11:38:26 INFO - Disk-sr0: 1.0 GB, 1073741312 Bytes
11:38:26 INFO - Disk-sdb: VMware Virtual S, s/n: n/a
11:38:26 INFO - Disk-sdb: 536.8 MB, 536870912 Bytes
? -Help Tab-details/log M -menu S -select W -start wiping Space-view data
```

When BCWipe Total WipeOut runs automatically, it uses wiping scheme (U.S. DoD standard or other) and other options that were chosen when you prepared BCWipe Total WipeOut bootable disk in the of **BCWipe Total WipeOut Configuration Wizard** program.

Read more information about BCWipe Total WipeOut wiping options and about preparing BCWipe Total WipeOut bootable disk in the [BCWipe Total WipeOut Configuration Wizard](#) chapter.

Running BCWipe Total WipeOut Manually

When you prepare **BCWipe Total WipeOut bootable disk** using BCWipe Total WipeOut Configuration Wizard, you can choose an option to run BCWipe Total WipeOut manually.

After booting computer using the bootable disk, BCWipe Total WipeOut will detect disks and enter manual mode.

In the manual mode the **Disk Menu** becomes available for each detected disk.

The **Disk Menu** contains all commands available for the disk selected. Thus the user can selectively perform some critical actions like resetting the **Host Protected Area** (HPA) or **Device Configuration Overlay** (DCO).

```
BCWipe Total WipeOut 2.30      Mon Jul 19 11:31:55 2010      www.jetico.com
1 ---- 536.8 MB VMware Virtual IDE Hard Drive
2                                     ual S
  Wipe
Di Standby
Dev Enter-OK Q-Cancel
Capacity: 536.8 MB, 536870912 Bytes, 1048576 sectors
Model: ATA VMware Virtual IDE Hard Drive
Serial: 00000000000000000001 firmware: 00000001
Features: ATA/ATAPI-4 T13 1153D rev. 17

? -Help Tab-details/log M-main menu D-disk menu Space-view data
```

ISO Configuration Wizard

BCWipe Total WipeOut Configuration Wizard

Configuring bootable disk for automatic or manual running
BCWipe Total WipeOut

Log settings

Select wiping scheme

Select wiping options for ATA drives

Finalizing BCWipe Total WipeOut ISO image configuration

Choosing the BCWipe Total WipeOut bootable disk type

Creating .ISO image

Creating bootable USB disk

BCWipe Total WipeOut Configuration Wizard

Since BCWipe Total WipeOut wipes all sectors on hard drive(s), the computer where you are going to run the utility must be boot using **BCWipe Total WipeOut bootable disk**.

BCWipe Total WipeOut Configuration Wizard is the program designed to prepare ISO image for bootable CD and/or to create bootable USB disk. The program helps to create bootable CD or USB disk used to wipe hard drives according to your requirements.

Depending on the options you select in BCWipe Total WipeOut Configuration Wizard, the wiping will be run automatically or manually. In case of automatic wiping BCWipe Total WipeOut will use some definite wiping scheme and run optional wiping hard drive areas hidden in **Host Protected Area** or by **Device Configuration Overlay** functionality supported by ATA hard drives.

See also:

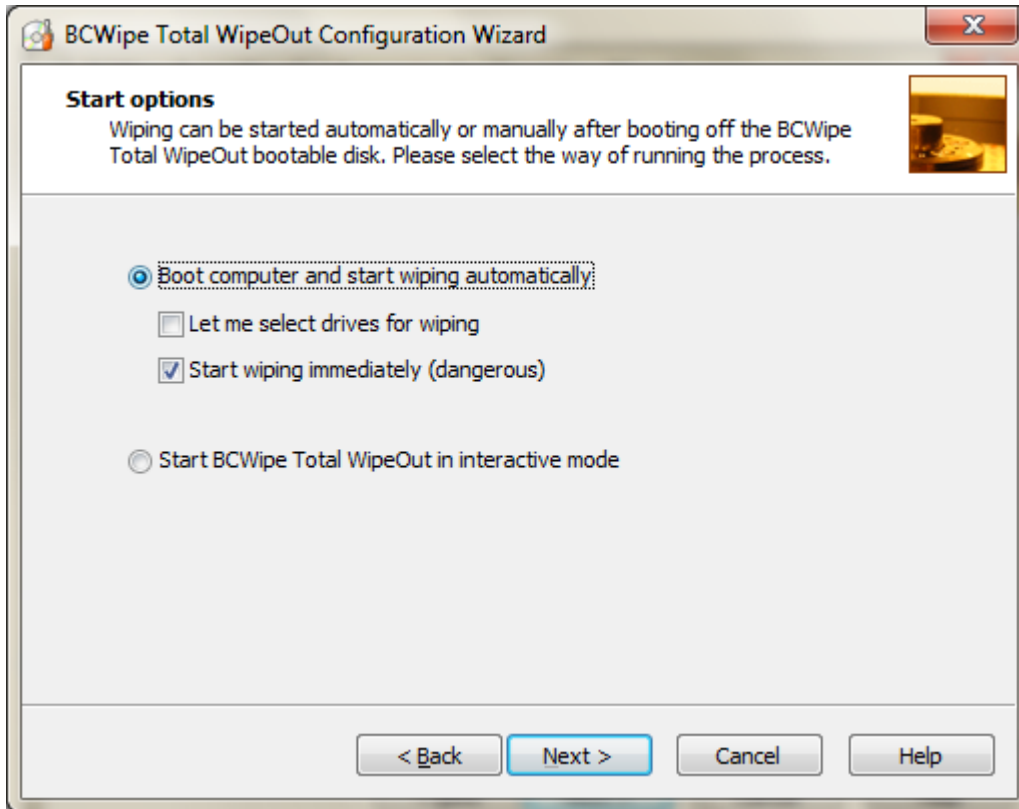
[Configuring bootable disk for automatic or manual running BCWipe Total WipeOut](#)

[Select wiping scheme](#)

[Select wiping options for ATA drives](#)

Configuring Bootable Disk for Automatic or Manual Running BCWipe Total WipeOut

The first step of configuration BCWipe Total WipeOut bootable disk is to select the automatic or manual way of running BCWipe Total WipeOut wiping functionality.



Select the **Boot computer and start wiping automatically** option if you want to run BCWipe Total WipeOut automatically. If you select the option, you can also make BCWipe Total WipeOut ask to confirm wiping every hard drive by setting the **Let me select drives for wiping**.

Start wiping immediately option allows user to create boot media for unattended operation. It will wipe all target system's disks without asking a confirmation. This option is recommended for keyboardless systems.

Select the option **Start BCWipe Total WipeOut in interactive mode** to use BCWipe Total WipeOut in manual mode. Note that if you select the option, Configuration Wizard will skip the further steps of setting wiping options for automatic running BCWipe Total WipeOut.

See also:

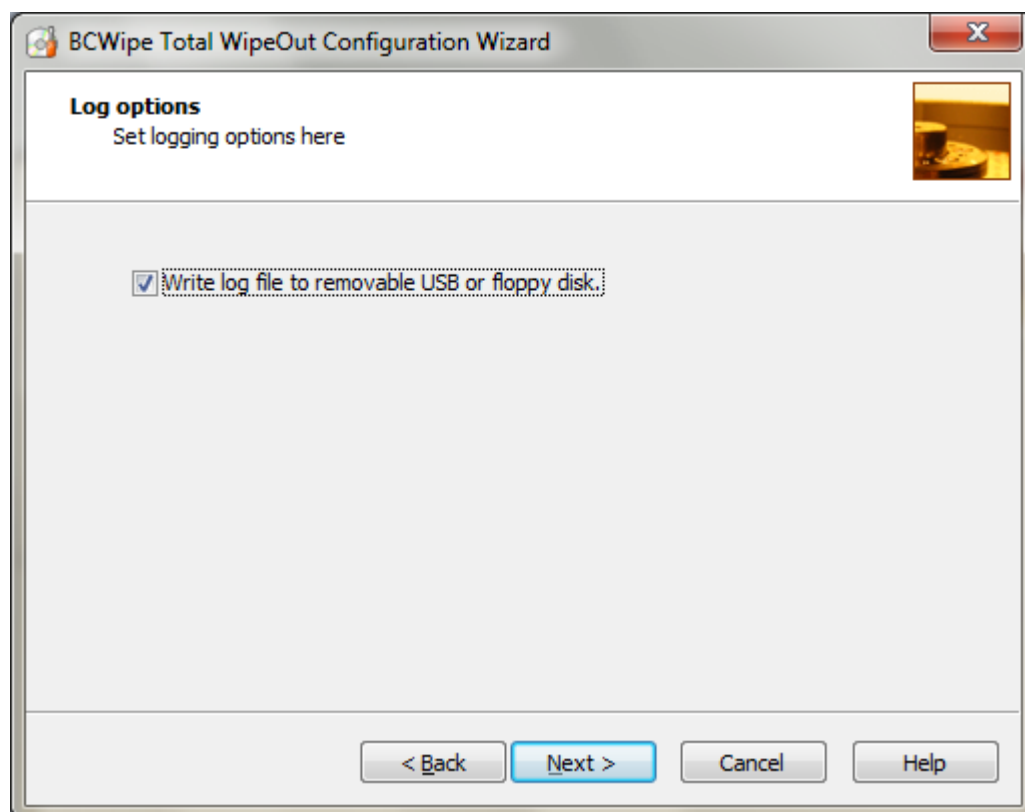
[Select wiping scheme](#)

[Select wiping options for ATA drives](#)

Log Settings

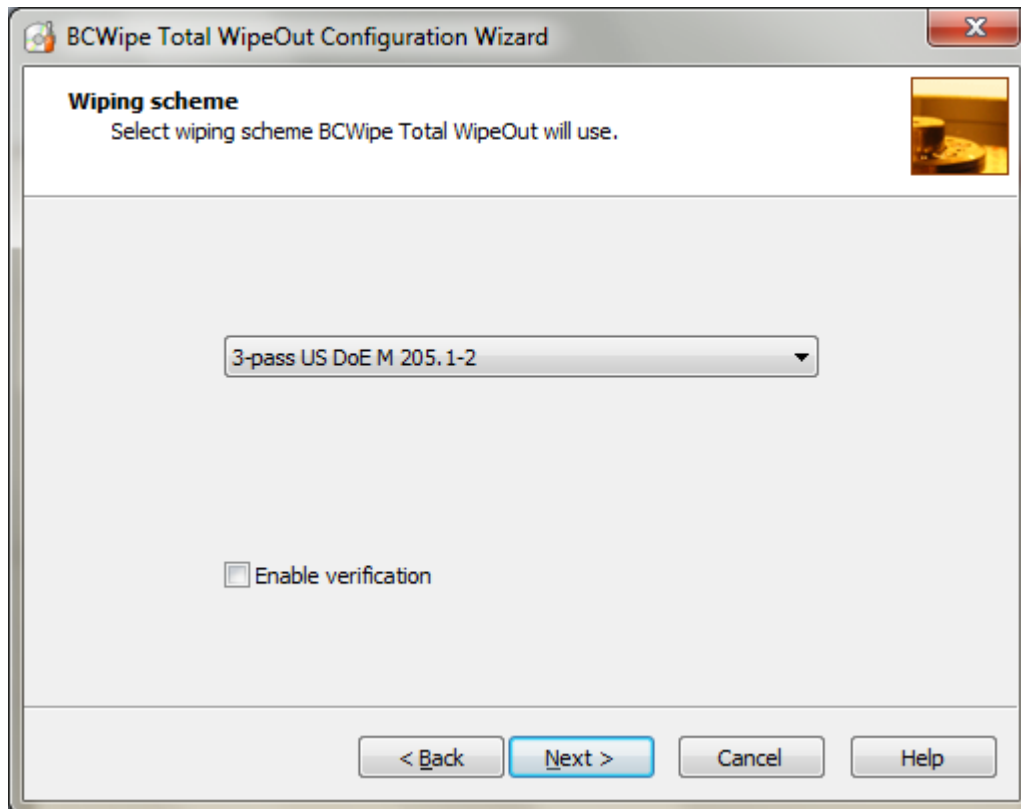
BCWipe Total WipeOut can write log files to Floppy, USB disk or network share.

With the **Write log to removable floppy or USB disk** option BCWipe Total WipeOut writes its log file to floppy or a USB stick. BCWipe Total WipeOut looks for files named **bcwipe-total-wipeout*.*** and uses that location for logging.



Select Wiping Scheme

The second step in preparing BCWipe Total WipeOut bootable disk is to select wiping scheme for automatic wiping hard drives. Note that BCWipe Total WipeOut Configuration Wizard skips this step if the user has selected manual running BCWipe Total WipeOut wipe operations at the previous step (see [Configuring bootable disk for automatic or manual running BCWipe Total WipeOut](#)). You can select one of the following ways to wipe hard drives automatically:



1. U.S. DoD 5220.22-M(ECE)
2. U.S. DoD 5220.22-M(E)
3. U.S. DoE M 205.1-2
4. U.S. Army AR380-19
5. NAVSO P-5239-26 (MFM)
6. NAVSO P-5239-26 (RLL)
7. Canadian RCMP TSSIT OPS-II
8. British HMG IS5 Baseline
9. British HMG IS5 Enhanced
10. German BCI/VSITR
11. Russian GOST R 50739-95
12. Bruce Schneier's 7-pass wiping scheme
13. Peter Gutmann's 35-pass wiping scheme
14. 1-pass random
15. 1-pass zero

To comply with standard DoD 5220.22-M, the option **Enable verification** must be enabled. In that case, BCWipe Total WipeOut will read each sector after wiping, to verify that the wiping pattern has been written properly.

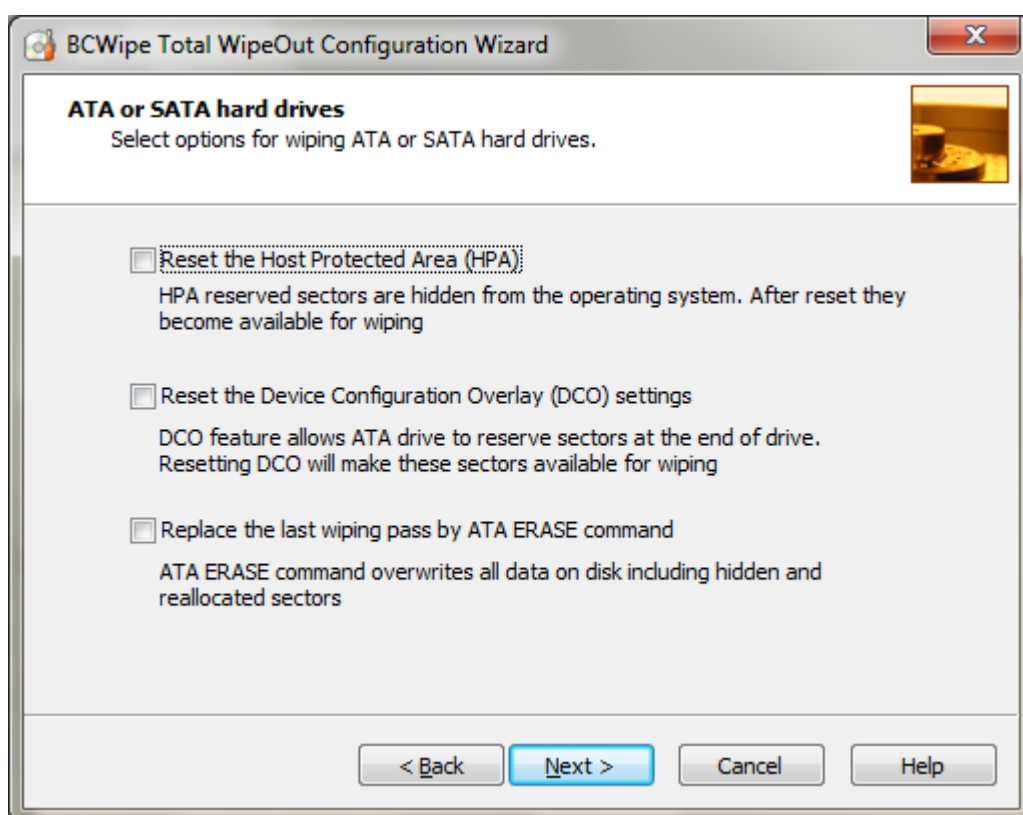
NOTE: In evaluation mode BCWipe Total WipeOut allows only the **1-pass zero** scheme.

Select Wiping Options for ATA Drives

ATA hard drives controllers support low-level configuration of the drives so that a specified number of sectors will be hidden for operating system. The hidden sectors can store sensitive information, especially if a whole hard drive capacity was earlier used and then the hard drive was re-configured on a low-level to use less number of sectors. It is also difficult to predict that some kind of viruses will not appear in future that will use the feature of ATA hard drive controller to hide themselves in the hidden hard drive areas.

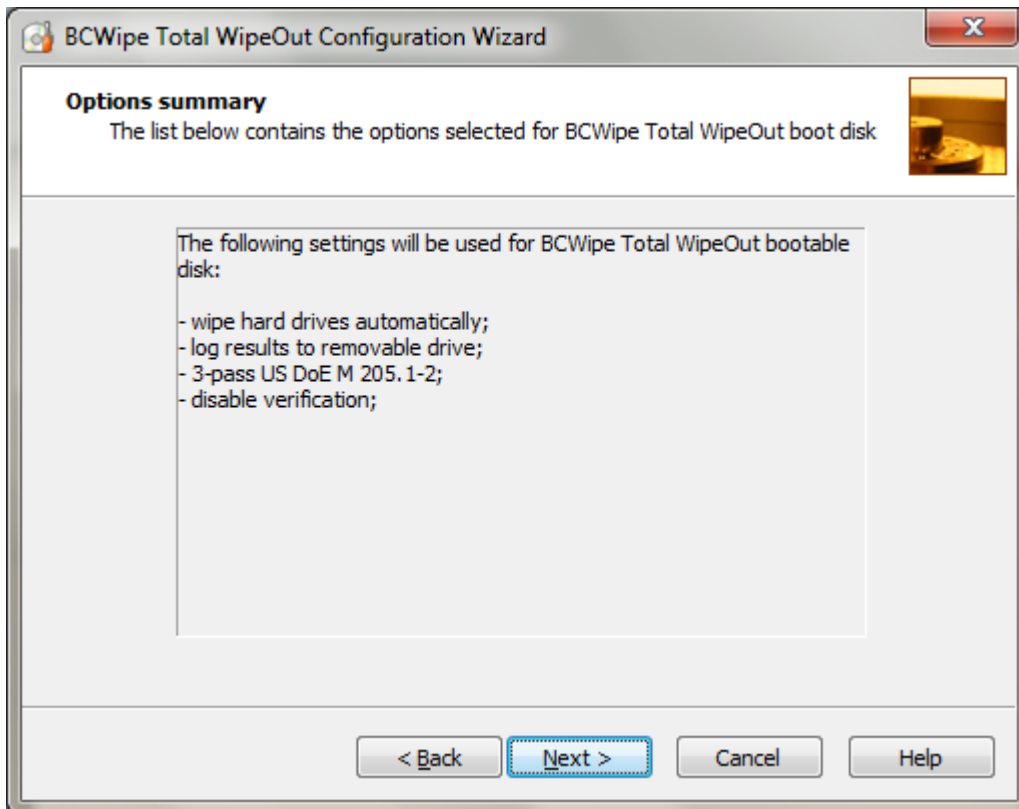
ATA hard drives support **Host Protected Area (HPA)** and **Device Configuration Overlay (DCO)** functionality to hide hard drive sectors from operating systems. BCWipe Total WipeOut allows wiping the areas and the following picture illustrates the options that can be set to wipe HPA and/or DCO areas.

BCWipe Total WipeOut can use specialized ATA SECURITY ERASE command for whole disk wiping. Please check the ***Replace the last wiping pass by ATA ERASE command*** to use ATA SECURITY ERASE instead of disk overwriting.



Finalizing BCWipe Total WipeOut ISO Image Configuration

The last step of creating BCWipe Total WipeOut ISO image for bootable CD is to select folder where you would like the Wizard to place the ISO image. Enter the filename and path in the **Path to ISO image file** edit box or click **[Browse]** to browse the folder.



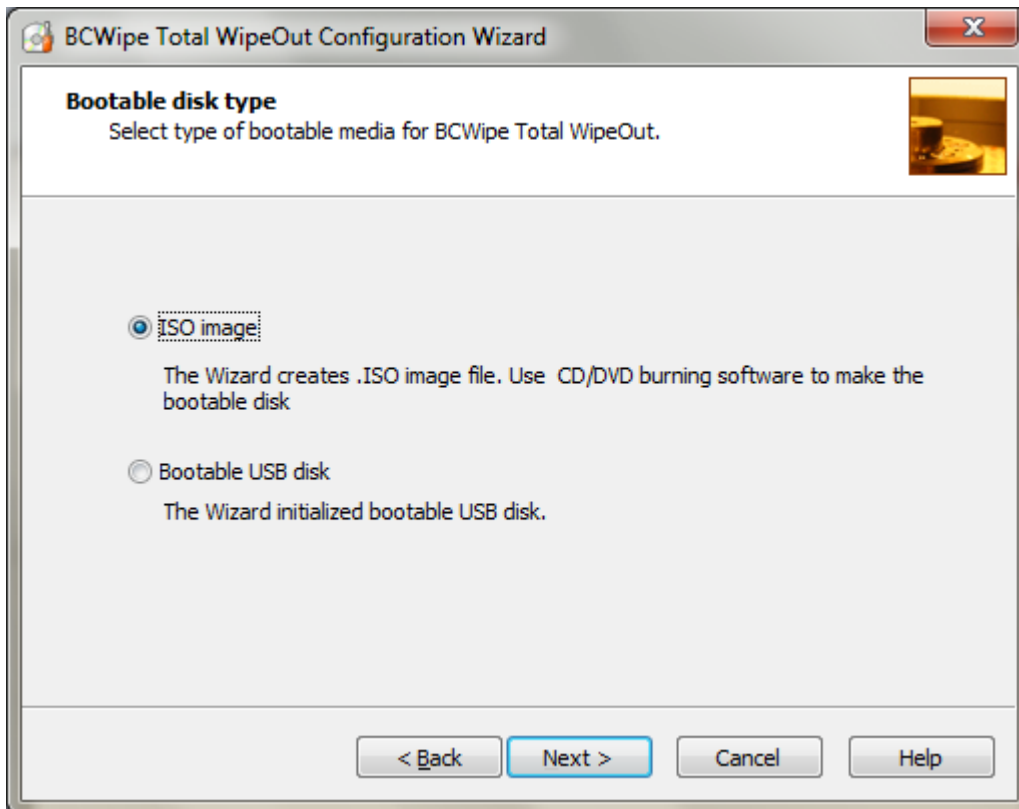
The window displays also all the settings you have selected for wiping hard drives. Click **[Back]** if you want to correct some of them. Click **[Finish]** to create the ISO image file and complete BCWipe Total WipeOut ISO Configuration Wizard.

After completing BCWipe Total WipeOut ISO Configuration Wizard use your favorite **CD Burning software** to burn the BCWipe Total WipeOut ISO image to CD disk.

Then insert the CD disk to CD-ROM drive of the computer where you want to wipe hard drives, reboot the computer and BCWipe Total WipeOut will run using the options selected in BCWipe Total WipeOut ISO Configuration Wizard.

Choosing the BCWipe Total WipeOut Bootable Disk Type

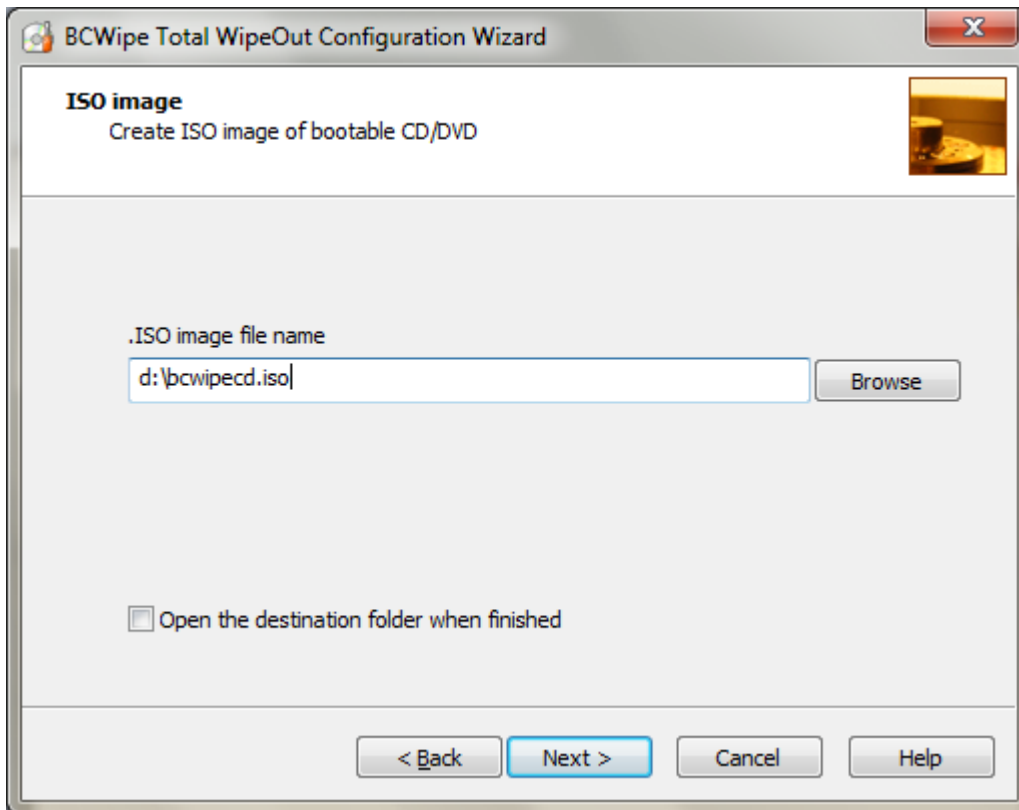
After setting all the options and getting the finalizing report you have to choose the type of BCWipe Total WipeOut bootable disk where from BCWipe Total WipeOut will run.



NOTE: USB disk must be set as the first boot device in BIOS to boot from the USB removable disk.

Creating .ISO Image for Bootable Disk

The Wizard will prompt you for the .ISO image path:

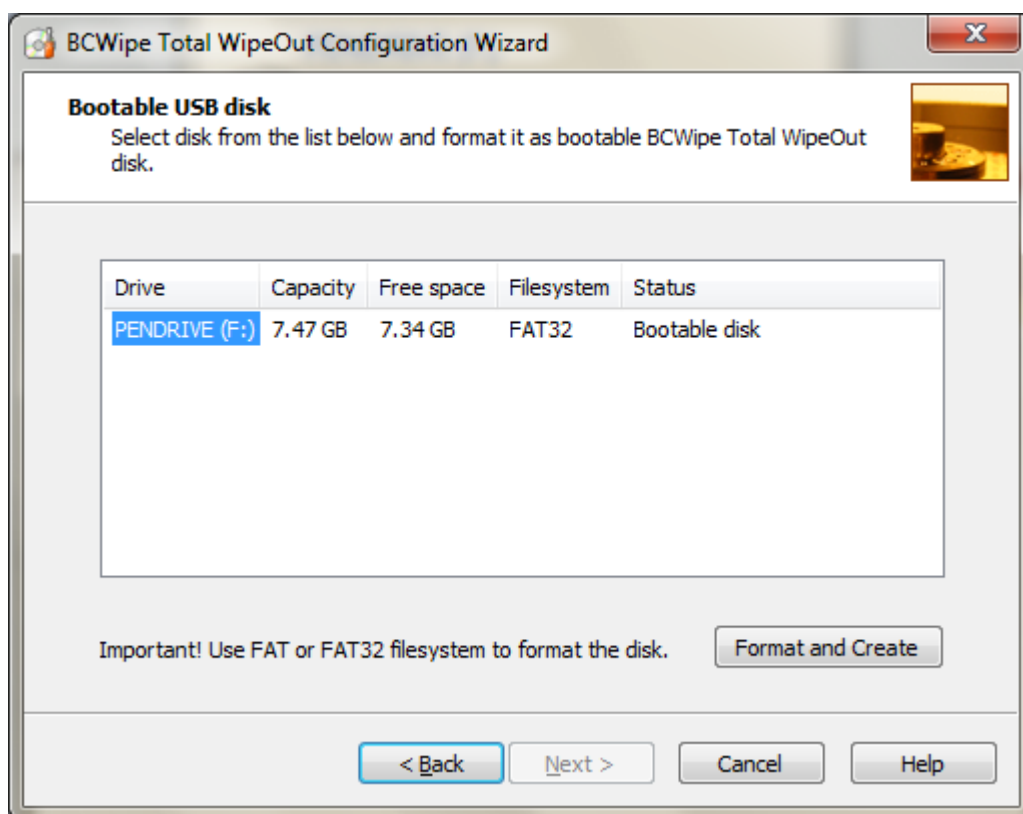


After completing BCWipe Total WipeOut Configuration Wizard use your favorite **CD Burning software** to burn the BCWipe Total WipeOut ISO image to CD disk.

Then insert the CD disk to CD-ROM drive of the computer where you want to wipe hard drives, reboot the computer and BCWipe Total WipeOut will run using the options selected in BCWipe Total WipeOut Configuration Wizard.

NOTE: CD-ROM drive must be set as the first boot device in BIOS to boot from the CD disk.

Creating Bootable USB Disk



The window contains the list of all removable USB drives connected to the computer and detected by the Wizard. The Wizard reports drive letter, size, free space, file system for each USB drive. The last column of the table reports whether the disk status.

- **Format required** - the Wizard will invoke the Format dialog for the disk;
- **Ready** - disk format is ok, the Wizard will copy necessary files and make it bootable;
- **Bootable disk** - the disk is bootable; probably it is BCWipe Total WipeOut disk.

To create BCWipe Total WipeOut bootable USB, click **[Format and Create]**. The Wizard will format the disk and copy all the necessary files there.

If you need to create several bootable USB disks, you can eject the USB disk, insert another one and repeat the procedure.

Then insert the USB disk to USB port of the computer where you want to wipe hard drives, reboot the computer and BCWipe Total WipeOut will run using the options selected in BCWipe Total WipeOut Configuration Wizard.

NOTE: USB disk must be set as the first boot device in BIOS to boot from the USB removable disk.

If You Want to Comment on the Software

If you have a product suggestion or comments on how to make BCWipe Total WipeOut documentation better, send us E-mail at this Internet address:

support@jetico.com

Be sure to include your name, e-mail, version number of BCWipe Total WipeOut. Please visit Jetico web site to get information about our other products, Frequently Asked Questions lists, Download Evaluation Software page and other:

<http://www.jetico.com>

We are always trying to improve our software. User feedback is important and extremely valuable to the development team.

Thank you for your time!

Jetico Team