

BLANCCO – Client Software

Manual

VERSION 4.8

Blancco Ltd
Länsikatu 15
FIN-80110 JOENSUU, FINLAND

sales@blancco.com
Tel. +358-207-433-850

support@blancco.com
Tel. +358-207-433-860
Fax +358-207-433-859



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GLOSSARY

Item	Explanation
BDC+	Blancco – Data Cleaner+
Fibre channel	A serial data transfer architecture developed by a consortium of computer and mass storage device manufacturers and now being standardized by ANSI. The most prominent Fibre Channel standard is Fibre Channel Arbitrated Loop (FC-AL).
ATA	Short for Advanced Technology Attachment, a disk drive implementation that integrates the controller on the disk drive itself.
HDD	Hard Disk Drive
SATA	SATA is an evolution of the Parallel ATA physical storage interface. Serial ATA is a serial link -- a single cable with a minimum of four wires creates a point-to-point connection between devices.
SCSI	Short for small computer system interface, a parallel interface standard used by Apple Macintosh computers, PCs, and many UNIX systems for attaching peripheral devices to computers.
HASP	An USB attached dongle which is used by Blancco to provide licenses for standalone environments.

GENERAL INFORMATION

Thank you for choosing Blancco for your Data Erasure needs.

IMPORTANT! PLEASE READ THESE INSTRUCTIONS THOROUGHLY BEFORE YOU START USING THE PROGRAM.

Before you start using the Blancco Client software make sure that all files, folders, software applications or any other information that you want to save for later use, are backed up on an appropriate media device other than the original hard drive. **Data that has been erased from the hard disk by this program cannot be recovered by any existing method. Please note that Device Configuration Overlay (DCO) settings will be reset to the default settings during the Blancco software boot.**

For future use of the erased computer an operating system must be installed.

If you are not sure whether to erase the information on the hard disk, please contact your system operator, information management or a corresponding party, which maintains the computers in your organization. **Do not erase the data if you are not completely sure about the necessity of the data.**

Minimum System requirements

Before using the software please check that your computer meets the following system requirements:

1. x86 architecture machine (Intel based PC) with 486DX processor or better
2. Hard disk drive
3. More than 32 MB RAM memory, recommended 64MB
Note! Memory need depends on the hardware environment and the client software
4. CD-drive (Floppy support can be found from version 4.7 and older)
5. SVGA display for graphical user interface
6. **[Optional]** Network card for Blancco – LAN Server, Blancco – WAN Server or www.blanccoservice.com solutions.

Booting up and Computer settings

1. Check that all the hard drives are attached properly into the computer
Note! If there seems to be [DCO](#) or [HPA](#) areas on the disks, please check the details for specific technologies from this manual.
2. If you have a laptop computer plug in the power adapter as well
3. Disable or type the BIOS passwords requested during the booting up (see section [Changing the “boot sequence” / Accessing BIOS](#))
4. Disable power saving qualities from BIOS.
5. Insert the Blancco program disk to the floppy disk/CD-ROM -drive
6. Switch-on the computer power or press the reset button. **Note!** Attach external devices before booting Blancco
7. If you are not sure, check from the BIOS that the system’s booting up priority starts from the CD-ROM first (see section [Changing the “boot sequence” / Accessing BIOS](#))
8. Follow the user instructions in order to start erasing the data

Attention! When erasing in a server environment we recommend reading the following chapters from this manual: [Erasure of SCSI Remapped Sectors \(Plus & Pro Clients only\)](#), [RAID erasures](#) and the [\[F7\] Bad disk option \(Only SCSI & Plus/Pro\)](#).

A SHORT INTRODUCTION TO BLANCCO - LITE, DATA CLEANER+ AND PRO USER INTERFACE

Steps in Blancco

Some of the user actions can be automated or modified for corporate users. Please contact your sales representative if you think this is necessary.

Step 1 / 4

Please read through the license agreement page and if you accept it click "Accept". Otherwise, click "cancel" and the program will shutdown without erasing any data from your hard drives.

Step 2 / 4

The identified hard drives in the computer are shown. Please check that the hard drives have been correctly identified. If the hard drives contain partitions, you are able to select the desired partitions for overwriting. Select the partitions with the keyboard arrow buttons, enter/space or just simply click with the mouse. Selected partitions are shown red and not selected white. You can deselect a partition by clicking it again.

Start the erasure by clicking "erase" with the mouse or press tab-key until "erase" is selected and press enter. You will be asked to confirm the erasure before it starts.

Attention! All hard drives and partitions are selected as default to be erased.

Function keys

[F2] Language / Keyboard layout
Option to select the language and keyboard layout.

[F3] Select erasure method
Select an overwriting standard or create your own overwriting standard. Save report to the hard disk.

[F4] Hexviewer
Built in sector viewer for the visual inspection of the hard drive.

[F5] Reports
Check the content of the erasure report and save/modify it if needed.

[F6] SMART, use this option to run additional SMART tests

[F7] Bad Disks, use this option in server environment for Bad Disk detection. See more details.

Optional [F8] HASP Activate, tool for activating licenses in a HASP key



Step 3 / 4

The data erasure process is shown; **cancel the erasure by pressing [ESC]**. Cancelling the overwriting process before it has properly finished will generate a situation that Blancco cannot guarantee that all the data has been written over. In this case, the report will state that the erasure was not properly completed.

Step 4 / 4

The data erasure report is shown. There are buttons at the end of the screen; "save" and "quit". After clicking "save" you are asked to select the detected device (floppy/USB port) on which you want to save the report. If you press "quit" you have to confirm that you are completely sure that you want to quit. After saving the report or after pressing "yes" to confirm, the "Please shutdown the computer" screen will appear. **Please save and store the original erasure report. The report is a document that proves that the erasure has been carried out according to the selected methods!**

FUNCTION KEYS

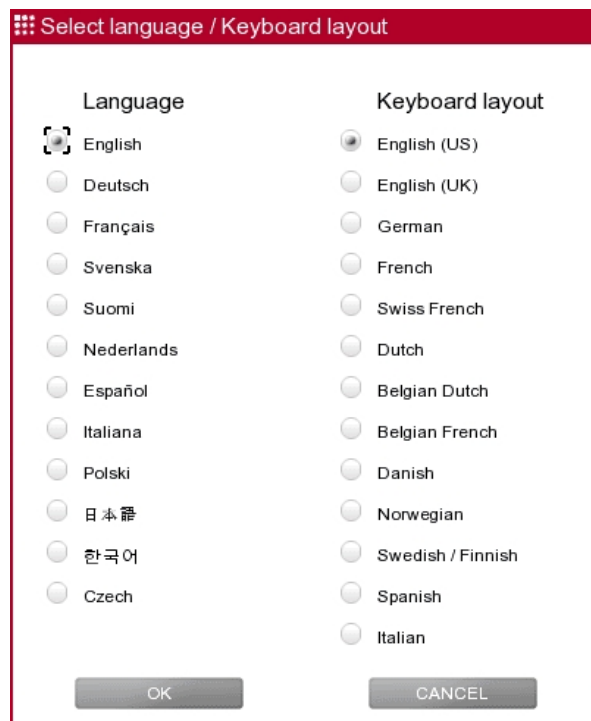
[F2] Change language / Keyboard layout

With the function key [F2] you will be directed to a screen where you can choose the preferred language and the keyboard layout by simply clicking with the mouse or by using the arrow buttons or the tabulator on the keyboard.

[F3] Select erasure method / options

The function key [F3] gives you the possibility to change or edit the overwriting method. Overwriting is processed in byte-patterns. The software overwrites the data in binary level using 1 and 0, in a way defined by the overwriting standard or a user-selected pattern. The user is able to choose the number of overwriting times and is also able to select the pattern for each pass. The pattern can be created directly with an approved standard or the user can create his/her own pattern.

The user can also select a desired format method. Blancco - Data Cleaner+ floppy version supports FAT16 and FAT32 file systems. These and the NTFS file system is supported in the CD and network boot in Data Cleaner+ and Pro.



Available erasure standards in version 4.8

HMG Infosec Standard 5, The Baseline Standard	1
HMG Infosec Standard 5, The Enhanced Standard	3
Peter Gutmann's algorithm	35
U.S. Department of Defense Sanitizing (DOD 5220.22-M)	3
Bruce Schneier's Algorithm	7
Navy Staff Office Publication (NAVSO P-5239-26) for RLL	3
The National Computer Security Center (NCSC-TG-025)	4
Air Force System Security Instruction 5020	4
U.S. Army AR380-19	3
German Standard BSI/VSITR	7
OPNAVINST 5239.1A	3
NSA 130-1	3
DoD 5220.22-M ECE	7
RSD (Remapped Sectors Destruction)	1

Overwriting rounds

Editing the erasure pattern

Select "custom" from the standard list. Enter the number of overwriting times and press "define". This gives access to modifying each overwriting method. The options are random or mask. Random means randomly selected binary 1 or 0 and with mask you are able to select the binary pattern, which is shown as Hex form.

Example:

3x overwrite in Hex form: 0x55, 0xaa, 0x00

3x overwrite in Binary form: 01010101 + 10101010 + 00000000

[F4] HexViewer

The function key [F4] shows the HexViewer, which is a tool for checking the content of each sector on the hard drive. After you have selected the hard drive from the dropdown menu you are able to go to “first”, “prev”, “next”, “last” and also to the selected sector on the hard drive.

[F5] Reports, Load previous reports / Check report integrity

By opening the “F5 Reports” page, the user will see a preview of the erasure report before executing the erasure and has the following options:

- User is able to fill in undetected fields
- F9 Load => Load's previous reports for a closer look without the ability to modify them. In addition, if the reports have been modified with another tool, they will no longer be shown in Data Cleaner+ or Pro. This is a precautionary step by Blancco in order to verify that the report is authentic and has been generated by Blancco software. However, if a third party has modified it Blancco cannot take any responsibility for the report content.
- F10 Save => User is able to save the report to a floppy/usb drive.
- F12 Cancel =>User can close the screen.

[F6] Option to run additional SMART tests

There are two types of SMART testing methods available inside of Blancco erasure software. Both of these are sending self-test commands to the hard disk drive. Self-test operations will check the electrical and mechanical performance as well as the read performance of the disk. The details of the tests are of course vendor-specific. Depending of the vendor the results is given back as detailed as possible, but mostly only as a success/failure.

Short self-test means:

Off-line short self-test for (S)ATA drives
Background short self-test for SCSI drives
Rough time estimation: 2 – 5 min

Long self-test means:

Off-line extended self-test for (S)ATA drives
Background long self-test for SCSI drives
Rough time estimation: 10 – 45 min

Possible reporting options when the SMART-self test has been performed:

Output:	Value Description (From ATA specification):
completed without error	The previous self-test routine completed without error or no self-test has ever been run
Aborted	The self-test routine was aborted by the host
fatal or unknown error	The self-test routine was interrupted by the host with a hardware or software reset
electrical failure	A fatal error or unknown test error occurred while the device was executing its self-test routine and the device was unable to complete the self-test routine.
servo/seek failure	The previous self-test completed having a test element that failed and the test element that failed is not known.
read failure	The previous self-test completed with the electrical element of the test having failed.
handling damage?	The previous self-test completed with the servo (and/or seek) test element of the test having failed.
segment failed	The previous self-test completed with the read element of the test having failed.

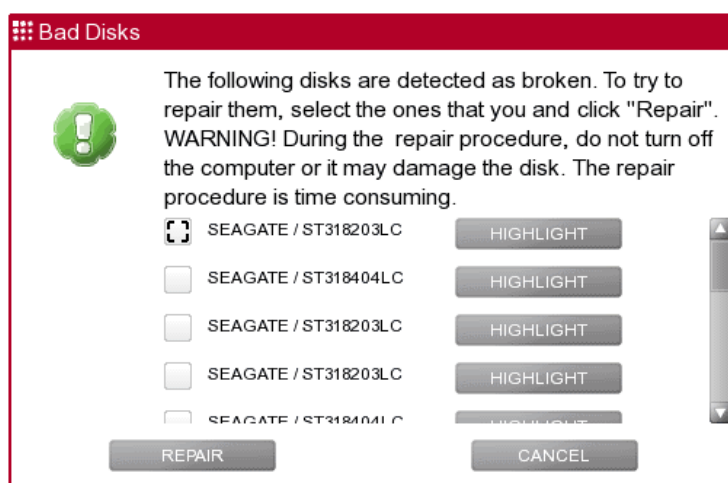
[F7] Bad disk option (Only SCSI & Plus/Pro)

In case broken disks are present in the system, Plus/Pro is not showing them in the hard disks selection page. With this tool you will be able to see the dodgy disks and highlight them in the rack.

When the software boots, after the hardware detection phase (before phase 2/4), the tool will search for broken disks, and in case at least one is found, a popup is shown. The popup consists of a list of dodgy disks, displayed using their serial number and a list of buttons, one button, labeled "HIGHLIGHT", for every disk. When the user clicks the button, Plus/Pro will light the led of that device for a second. If the user keeps the button pressed, the led will be lit as long as the button is pressed. The popup also contains a "CANCEL" button, which will dismiss the popup and continue the normal flow of the software. After the popup is dismissed, a re-detection of disks is done.

NOTE! Disks that have not been selected for repairing will not be taken into the erasure process. Unrepaired disks might cause a failure in the erasure process.

WARNING! Do not turn off the computer or cancel the repair process or the SCSI disk can be damaged. If power shortage will appear try to re-run the tool again in order to get the disks back in to a functional state.



Generated reports after the erasure

Blancco's erasure products will produce reports in four different forms. Html format can be viewed in a browser. All xml and csv formats are provided in order to facilitate data importing to external database systems. These files contain all the reports, which are generated by the erasure software. The folder structure contains the xml, xsl and css information for individual reports. Xml information always contains the actual hardware information while the xsl and the css files are just for generating the report style and structure.

report-20040906012408_files	File Folder
report-20040906020533_files	File Folder
report-20040906021221_files	File Folder
report-20040906021811_files	File Folder
report-20040907011411_files	File Folder
report-20040907013929_files	File Folder
report-20040907095826_files	File Folder
all.csv	7 KB Microsoft Excel Com...
all.xml	7 KB XML Document
report-20040906012408.html	1 KB HTML Document
report-20040906020533.html	1 KB HTML Document
report-20040906021221.html	1 KB HTML Document
report-20040906021811.html	1 KB HTML Document
report-20040907011411.html	1 KB HTML Document
report-20040907013929.html	1 KB HTML Document

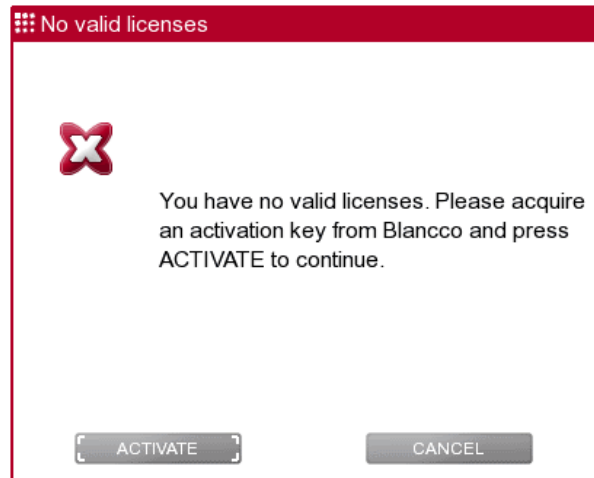
Maximum amount of reports to be saved in a USB stick is 70 reports in a 4.8 version. In later versions this limitation is removed.

Note! The all.xml -file can be easily uploaded to the Blancco – LAN / WAN Server database as one single file.

[F8] HASP Activate, tool for activating licenses in a HASP key

If no valid licenses are found or the number of remaining licenses found are not sufficient to allow further operations, a dialog is displayed that suggests acquiring an activation key with licenses in order to continue. By clicking CANCEL on this dialog the client shuts down. In order to continue running the software, an activation key has to be acquired from your Blancco sales representative.

The activation key request should contain the ID of the HASP key and the types of the client software and the number of licenses for each type. The activation key file will be sent by email or other agreed upon means and your account will be charged with the licenses offered in the activation key.



1. **Save the activation key from sales representative to USB**
2. **Plug the HASP dongle and the USB drive with the activation key file into the computer where Blancco is running**
3. **Click on ACTIVATE on the dialog that notifies about license insufficiency. If you want to ADD licenses just press F8 in order to get "Load activation key" pop up.**
4. **On the "Load activation key" choose the drive where the activation file is located**
5. **Select the displayed *.hsp file**
6. **Click on the LOAD button and licenses are activated**
7. **Start using Blancco licenses. License of the used product is taken immediately after you have started the erasure.**

Note! Make sure the HASP key is connected and if the activation is successfully done, the license information displayed at the top center of the screen will be updated and if enough licenses were acquired, further operations will be allowed. Code can be used only one time.

SECURITY FEATURES IN BLANCCO ERASURE CLIENT

Detecting hard disk

Magnetic storage medias like hard disks utilize physical addressing when storing information on a media. With this addressing the hard disk is divided into smaller parts that can be appointed according to certain parameters. In magnetic media the mentioned physical parameters are sectors, cylinders and heads. During the computer usage these parameters enable the operating systems to locate the information on a hard disk but they also define the size and storage base of a hard disk. A reliable and protected detection of these hardware level parameters is essential and the erasure software must be capable of detecting the correct hard disk sizes regardless of the techniques used in altering the hard disk information. Failure in accurately detecting the hard disk may result in an incomplete erasure of the hard disk.

All Blancco data erasure tools utilize hardware level detection for hard disks enabling the software to detect correct hard disk sizes regardless of faulty or incorrect BIOS set hard disk values. As a result, the overwriting process will reach the whole hard disk surface leaving no areas untouched.

Bad sector handling

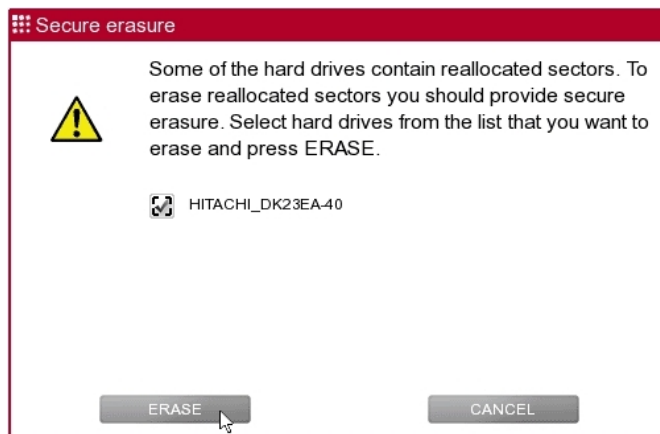
Even though the incorrectly configured, faulty or damaged configurations cause a potentially remarkable data security risk there are also other gaps that need to be addressed in order to guarantee a secure data erasure process. Hard disks might contain damaged areas that cannot be accessed with read nor write command anymore, which makes those areas unusable. In data erasure terms these areas are called physical bad sectors and data erasure tools must be able to detect and especially report them.

Blancco erasure client keeps track of the data erasure procedure and informs if the data erasure (overwrite) cannot be performed due to some error on the hard disk. E.g. in case there are any bad sector(s) found on the hard disk, the software will try to write a data block to the defected area. If the area remains "silent" Blancco will try to write a smaller block (half of the original block size) to the defective area in order to overwrite the maximum amount of data. The same procedure will continue until the software tries to write the smallest possible block to the hard drive and if unable to do so the sector will be marked as physical bad sector. This procedure offers extremely accurate erasure even in case of bad sectors so that all the possible areas will be erased and only the real bad sectors/areas will be reported. The bad sectors will be reported in the user interface and also in the erasure certificate that is produced after each erasure.

In all scenarios the user will be notified about the erasure status leaving no option for misinterpretation.

Information destruction of remapped/reallocated sectors in ATA and SATA interface

Modern hard drives have a lot of functions for self-testing, self-recovering and keeping track of their state. One of the possibilities is sector remapping. This allows the hard drives to detect and hide the sectors, which will either be or have become impossible to access. The hard drives have a so-called spare area intended precisely for this. When a failed sector is detected, the hard drive controller assigns the address of the sector to a new one in the spare area. So the address remains the same but the owner is changed. The remapped sector may contain some of the user's data that must also be erased during a secure disk cleaning.

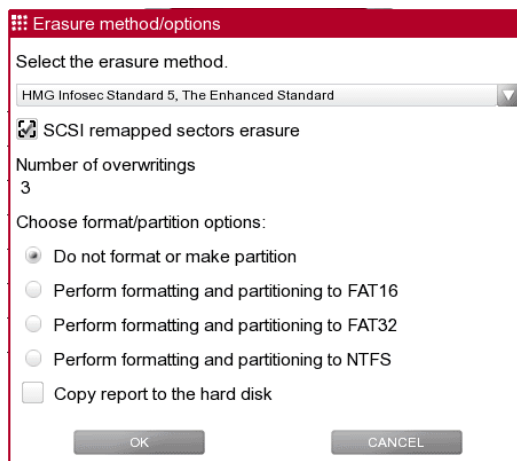


With BDC+/Pro the remapped sectors can be erased and data recovery becomes impossible. If the hard drives support the erasure of remapped sectors BDC+/Pro will inform the user about the found remapped sectors and the user has the option to erase these sectors. In order to guarantee these options please disable the BIOS hard disk drive detection for proper detection and functionality by Blancco

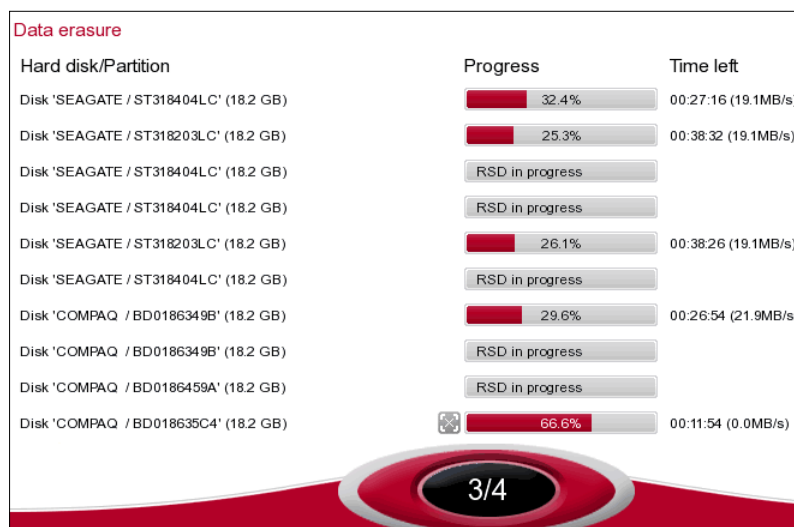
Information destruction of remapped/reallocated sectors in SCSI interface (starting from v4.8)

SCSI remapped erasure can be enabled by selecting the erasure standard and filling "SCSI remapped sector erasure" checkbox and pressing [OK]. SCSI remapped sectors erasure is enabled as default with the following erasure standards:

- U.S. Department of Defense Sanitizing (DOD 5220.22-M)
- Blancco Remapped Sector Destruction (SCSI remapped sectors erasure can not be disabled)



If the remapped sectors are detected during the erasure processes the following text appears to the progress bar: *"RSD in progress"*. Note that if "Blancco RSD" erasure method is selected the Remapped Sector Destruction is performed to every hard disk. Erasing remapped sectors can be a time consuming process depending of the hard disk size and disk speed.



WARNING! Do not turn off the computer or cancel the erasure during the Remapped Sector Destruction in process or the SCSI disk can be damaged.

Host Protected Area (HPA)

Blancco software can detect the Host Protected Area and erase it. The HPA is commonly used to store the recovery part of the operating system and can contain sensitive data. When a Host Protected Area is found the area is erased as a default. **Pop-ups are shown only if problems are occurring** or the erasure software has been modified to allow the user to select if he wants to erase the HPA area or not.

In order to guarantee the functionality of this option, please disable the BIOS hard disk drive detection for proper detection and execution of Blancco. In some cases the computer must be rebooted in order to remove the HPA.

Device Configuration Overlay handling (DCO)

Device Configuration Overlays (DCO) is another but less known optional feature set. It first appeared in the ATA-6 standard and because of this it does not have as many features as HPA. DCO enables the possibility to create special partition to hard disk where user or operating system cannot access. This specified part of the hard disk creates a risk that some data might be left on the hard disk after the erasure unless the erasure product is capable of detecting and also extending and erasing DCO areas.

Blancco erasure client products are able to detect, extend and erase DCO areas. In addition Blancco software reports the procedure to the user in the user interface and also in the erasure certificate. **Pop-ups are shown only if problems are occurring.**

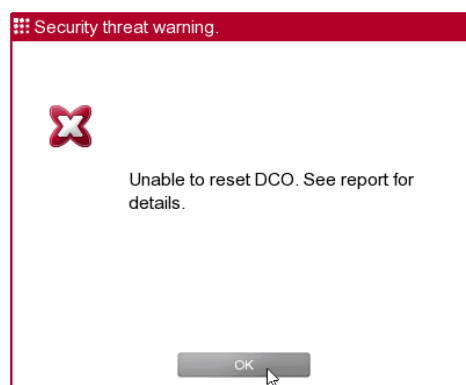
Q: Why doesn't Blancco over write this area?

A: There is a BIOS low-level protection mechanism that locks DCO functionality and prevents disk configuration changes by some malicious software. If the protection mechanism cannot be disabled the message "Unable to reset DCO" is shown. The protocol is there, but the software cannot access it because the BIOS is blocking the access.

Q: Is there a way around the DCO.

A: If there is a DCO configured extra partition on the disk and BIOS freezes DCO functions then normally the freezing lock can be switched off from the BIOS settings e.g. turning off the hard disk detection. It is also possible to connect the disk to other machine with the required functionality to remove DCO.

If there is no way to disable the DCO freezing lock it may be that there is a BIOS protecting mechanism against setting or removing the DCO partition. This usually means that there is no extra partition and the message "Unable to reset DCO. See report for details." will appear. **The final way to confirm that there are no extra partitions is to check from the manual or disk case the number of sectors and make sure that it corresponds to the one detected by Blancco erasure software.**



The following chart describes the behavior of the detected hard drive depending on the DCO status assigned for it. The last column specifies the needed actions for accessing the complete hard drive area.

Mode	Detected HDD size	Needed actions
DCO not activated	40 GBs	No actions needed
DCO activated but not used	40 GBs	No actions needed
DCO activated for 1 GB area	39 GB's	Extend the DCO
DCO and BIOS lock activated for 1 GB area	39 GB's	<p>Option 1. Remove automatic detection of hard drives from BIOS and try the erasure again.</p> <p>Option 2. Remove the hard drive and place it into another computer where BIOS DCO 'freeze lock' is not activated.</p>

Table: Failed, locked or protected area support in Blancco – Clients 4.8.

The following table contains a summary of different locking/protection methods supported by Blancco erasure client software.

HDD interfaces	ATA	SATA	SCSI	Fibre Channel
Bad sector detection	YES	YES	YES	YES
Remapped sectors (detection)	YES	YES	YES	YES
Remapped sectors (erasure)	YES	YES	YES	YES
Host Protected Area (HPA)	YES	YES	(1) Not existing	(1) Not existing
Device Configuration Overlay (DCO)	(2) YES	(2) YES	(1) Not existing	(1) Not existing

(1) Not existing – this mark means that the technology is not available in the hard disk standard. For instance HPA is not supported in SCSI standard.

(2) YES ; unless the DCO is in "freeze lock" mode.

OPTIONAL FEATURES IN BLANCCO ERASURE SOFTWARE

There are optional features in Blancco Client products, which are not included by default. Please check from sales representative what features are included if you are not sure.

Hardware tests

Blancco – Data Cleaner+ and Blancco – Pro erasure clients can contain an inbuilt hardware test application. The application can perform up to 9 different test features for the hardware. The purpose of these hardware tests is to ensure the functionality of different computer components. By performing the tests the user is able to check and report the current condition of a computer. Guaranteeing the functionality of a computer helps the user to sell/donate high quality second hand computers and enables the buyer to verify the condition of the purchased computer.

Hardware tests include both fully automated and manually operated tests. Manually operated tests are based on visual and audio output that the system provides. Manually operated tests will have a pop-up with test related questions and buttons (Yes/No/Other button). Navigation in the software is handled with the mouse or keyboard shortcuts (Y -key/ N -key/ Other -key).

Note! This option requires a modified software image from Blancco.

Automatically operated tests

The following hardware tests are executed automatically before the Blancco software has been completely loaded to the computer. The user will see a progress bar on the screen for each test component. The testing process can take a while. If there is no time for performing the tests they can be skipped by pressing <Esc>.

Memory test

The memory test checks the low and the extended memory of a computer automatically. The test time depends on the size of the memory and the speed of the processor. The results of the test can be either operational or failed. The tests are operated with certain data patterns. Each data pattern is first written to the memory and then read and verified.

CPU (Central Processing Unit)

The CPU test checks the functionality of the processor. The CPU test is performed automatically and the test results are either operational or failed.

CPU test checks the following features:

- ALU (Arithmetic Logic Unit) that performs arithmetic and logical operations
- MMX (Multimedia Extensions) that handles multimedia operations

If the test fails the user is given an option to repeat the test or continue to the next phase.

Motherboard

The motherboard test checks the functionality of CMOS (complementary metal oxide semiconductor) and other parts of the motherboard. The test gives operational/failed status for different parts of the motherboard. It tests the following motherboard features:

- CMOS battery: provides power to memory that contains date, time and system setup parameters
- CMOS checksum: warns if CMOS is corrupted
- CMOS read/write
- Keyboard controller circuit
- Keyboard interface

Manually operated tests

Manually operated tests require user interaction. After accepting the license agreement there are several options:

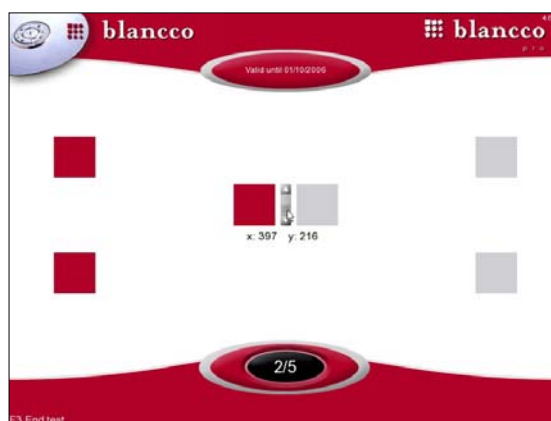
- [CONTINUE] skips the tests that require user interaction and goes directly to the hard drive erasure.
- [START ALL] performs pointer, display, keyboard, optical device, floppy and sound tests.
- [START] performs one test e.g. the keyboard test.

Pointing devices (mouse, touchpad and track stick)

The pointing device test checks the functionality of the mouse, touchpad or trackball. Different components of the pointing device are then shown on the screen (See picture 3). When a component passes the test the colour of the corresponding rectangle changes colour on the screen. The pointer position is shown in x- and y-coordinates.

The following manual actions are required from the user:

- *Left* click on the pointing device => changes middle-left rectangle color to red.
- *Right* click on the pointing device => changes middle-right rectangle color to red.
- The user must move the pointer to the other rectangles on the screen and make a left or right click on each rectangle.

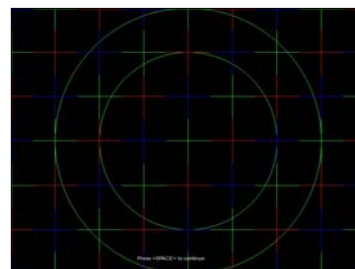
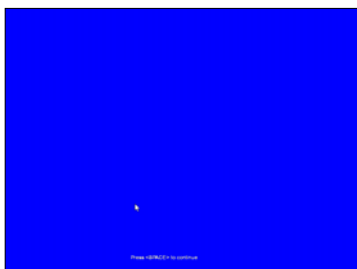


After clicking on each rectangle the colour of the target rectangle changes to red. Actions listed above can be performed in any order. Clicking a rectangle or button, which is already red will not change the colour back to grey. When all the rectangles are red the test is over. End the pointing device test by pressing the [F3] key or by clicking the "F3 End test" text in the bottom left corner of the screen. The pop-up screen will appear and the user must confirm the test result. The following options are available:

- [Yes] – This will set the test result to "successful"
- [No] – This will set the test result to "failed"
- [Cancel] – This will set the test result to "not performed"

Display

The display test is used to check the functionality of a display. The software displays several test screens for the user. First the user should see 5 different screens with different colours. After that the software displays a test pattern. Some of the test pattern lines are two coloured. If a two coloured line is shown as one continuous line the display is functioning correctly.



The picture on the left is one of the colour test screens. The middle picture is the confirmation screen where you have to confirm if you were able to see the blue color. The picture on the right side is the test pattern picture.

Please answer “Yes” or “No” to the questions. If the test screen is not shown correctly there is an option to re-run the test screen, abort the hardware test altogether or proceed to next screen.

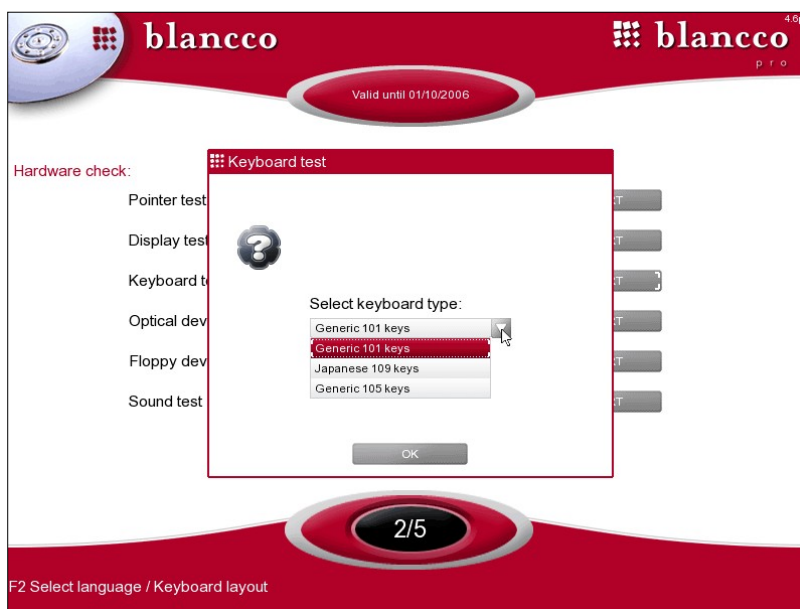
The display test includes the following steps:

- Screen is filled with white colour and text at the bottom of the screen “Press <SPACE> to continue”
- Screen is filled with blue colour and text at the bottom of the screen “Press <SPACE> to continue”
- Screen is filled with green colour with text at the bottom of the screen “Press <SPACE> to continue”
- Screen is filled with red colour with text at the bottom of the screen “Press <SPACE> to continue”
- Screen is filled with black colour with text at the bottom of the screen “Press <SPACE> to continue”
- Screen is filled with a test pattern as shown in a test pattern picture with text at the bottom of the screen “Press <SPACE> to continue”

When each step is performed, the user is asked to validate the colour or test pattern. Please answer simply with a “Yes” or “No” to the validation questions. The display test can be aborted by choosing “Cancel”. Cancelling the display test sets the test result to “not performed”.

Keyboard

The keyboard test is used to test the functionality of the keyboard. The keyboard test is performed manually. Before the actual test the user is able to choose the desired keyboard layout (see the picture below).



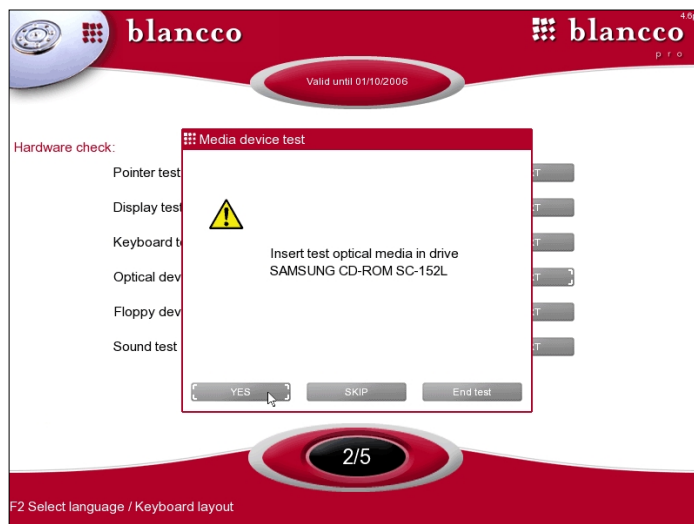
The keyboard layout is shown in small rectangles on the screen. When pressing a key, a corresponding rectangle turns to red on the screen. Releasing the key will not turn the colour back to grey. The response time for key press detection is short. Short response time allows the user to press the keys very fast e.g. dragging the finger over the keyboard or pressing several keys simultaneously. Please note that most of the keyboards can send only 3 key signals at once. You can also test the keyboard’s indicators (the LED lights) by pressing [CTRL] + [F4] keys. The indicators should be blinking for a while.

End the keyboard test by pressing [CTRL] + [F3] keys or by clicking the “CTRL + F3 End test” text in the bottom left corner of the screen. The pop-up screen will appear and the user must confirm the test result. The following options are available:

- [Yes] – This will set the test result to “successful”
- [No] – This will set the test result to “failed”
- [Cancel] – This will set the test result to “not performed”

Optical devices (at the moment only CD option is available)

The optical device test is used to test the functionality of the optical devices (CD). The system detects automatically all optical devices connected to the computer. After the detection all found devices are shown in a list. Then the system prompts the user to put a test CD into the device (See picture 6). The system tries to read data from the test disc. If the data can be read the test result will be successful. The system repeats the test for all found optical devices. If the test fails an option is given to the user to repeat the test or continue to the next optical device or to next test phase. If all optical devices passed the test then system proceed to the next test phase.



Note! The optical test requires a special file saved on CD in order to work properly. You can download the test CD image from the following location:
http://download.blancco.com/Test_CD/Test_CD_for_HW_Test.zip (Compressed size 782Kb, Uncompressed *.iso image 666Mb)

Floppy drive

The floppy drive test is used to test the functionality of the floppy drive. The floppy test tries to read the floppy from random locations. The floppy test does not need any special test floppy. If the floppy test is a success the system proceeds automatically to the next phase. If the test fails the user has the option to repeat the test or continue to the next phase.

Sound

The sound test is used to test the functionality of the PC speaker. The system produces a beep sound and asks the user if the sound was heard or not. The following options are available:

- [Yes] – This will set the test result to “successful”
- [No] – This will set the test result to “failed”
- [Cancel] – This will set the test result to “not performed”

Customized erasure reports

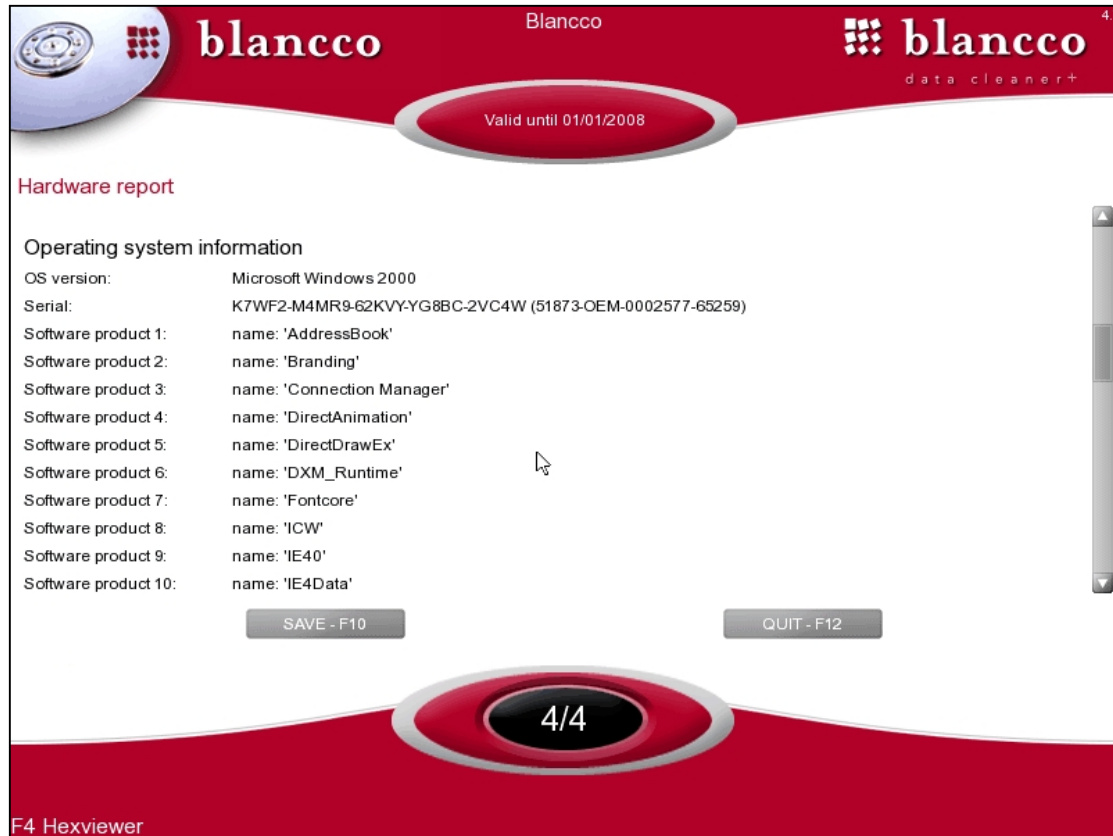
Blancco Data Cleaner+ and Pro generates detailed reports after each erasure process. The basic sheet contains fields for extra information, which can be filled in before saving the report. These fields are located at the end of the report and the fields are named as info1, info2, info3 etc. Blancco offers the possibility to create more customer specified erasure reports by adding named extra fields to any part of the erasure report (see picture below).



Note! This feature is optional. Please contact your sales representative if this is necessary.

Windows OS version, Serial or installed software detection possibility

In the 4.8 version of Blancco - Data Cleaner+ and Pro the operation system version and serial number can be displayed. Also the list of installed software is shown. In the software list the name of software is always shown. Version and serial are shown if the software's manufacturer provides them (see the picture below).



Note! When hardware/software encryption is used or RAID Array has been dismantled in the hard disk drive Blancco is not capable of performing registry information gathering.

TROUBLESHOOTING, STEPS TO DO BEFORE CONTACTING SUPPORT**Changing the “boot sequence” / Accessing BIOS**

In order to boot Blancco software set the used drive (Floppy/CD) as a first booting device.

To change the boot sequence, you must enter the "Setup" or "CMOS Setup" on your computer and change the booting sequence using the Floppy/CD drive first. There are several ways to enter the setup depending on your computer manufacturer and the model. During the booting stage a message will appear stating "Press DEL to enter Setup". As the message flashes only once on the screen, you must be quick to press the key before the boot sequence continues. Please note that the boot sequence may continue without any user intervention.

The [Delete] Key and [F2] are the two most common keys

We have collected some of the key combinations in order to get into the BIOS. On most systems you need to press these keys repeatedly during the POST (Power On Self Test) as soon as the computer has been turned on. If the Windows Logo appears, you are too late, restart the computer and try again.

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) Windows:	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

Burning the *.iso image / Creating the CD image

'Dragging and dropping' the file onto the CD-R or CD-RW is NOT possible. An ISO file is a image file which contain many smaller files that must be extracted to the CD at the time of burn. By performing the burn process properly the ISO image will create an possibility to boot your computer from the CD.

[Nero: Burn Image to Disc](#)

[Roxio: Burn an image ISO file with Creator Classic](#)

[ImgBurn: How to Burn](#)

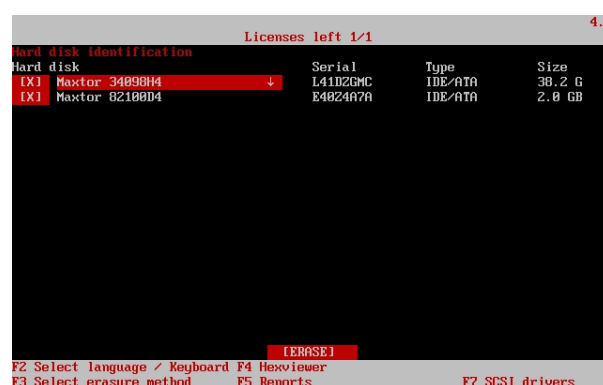
[ISO Recorder: Recording ISO files](#)

Using a non-graphical user interface

Lite, Data Cleaner+ and Pro will use a non-graphical user interface if the display controller does not support VESA VBE 2:0 (Video Electronics Standards Association driver) or 256 colors and 800x600 resolution. Most of the display controllers, however, support these features.

Using a non-graphical user interface is easy. It has been built in to include all the same functionalities as the graphical interface. You do not need to use any special text commands etc. If the mouse is attached, it will also be supported. The non-graphical user interface **supports only the English and French language and symbols.**

If you want to access the non-graphical user interface manually you have to press both shift buttons down before the software tries to start from the boot media. Non-graphical user interface can be turned on as a default but this option requires a modified software image from Blancco.



Debug utilities for troubleshooting

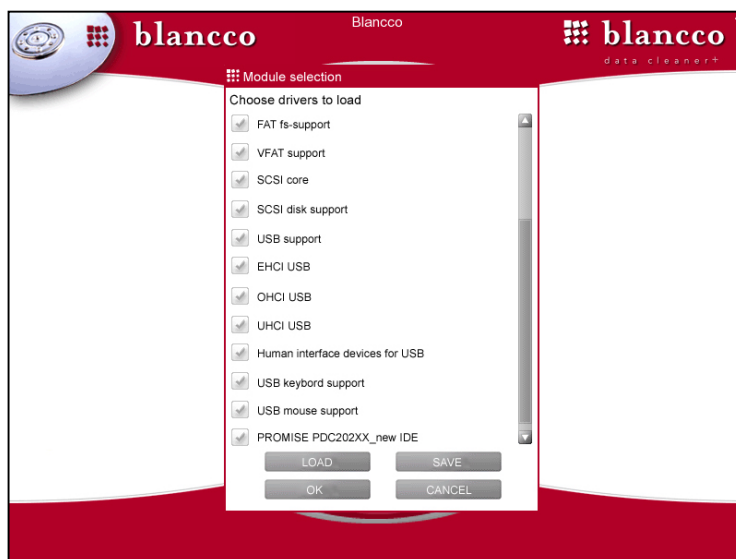
All the Blancco client solutions contain the ability to gather and save debug information from the unit where the tool is used. Gathering this information before contacting support will greatly speed up the trouble shooting process. Please see steps for gathering debug information below:

Debug collection:

1. Attach a USB stick to the device
2. Press the left "CTRL" key just before the software is loaded from the CD or Floppy. (Or use Blancco Debug CD)
3. If the start up has been successful, the text "DEBUG" should appear on the bottom right corner of the screen.
4. Save the Pre-report to the USB stick by pressing F5 in Hard Disk Selection screen (2/4).
5. Press "F1". There should be a debug pop-up screen
6. Save the debug report to the USB stick
7. Compress all the files and sub-folders on USB pen to zip or rar package and send then package to support@blancco.com

Excluding drivers:

1. Press the left "CTRL" key just before the software is loaded from the CD.
2. If the start up has been successful, the text "DEBUG" should appear on the bottom right corner of the screen.
3. The module loader screen should appear. Continue by pressing "OK" without doing any changes to the driver list.
4. Blancco client software starts loading the drivers and you should see the driver names as clear text. Write down the driver name that causes the software hang up.
5. Reboot the server again from the CD and remember to press the left "CTRL" key again just before the software is loaded.
6. Exclude the the driver, which caused the software hang up, from module loader list.
Optional! If the device functions properly after the driver removal you can save the configuration to a USB stick and by having it attached in the device Blancco will load this specific configuration automatically.
7. Use the erasure software normally or reboot the other machines with the same problem with the USB stick attached on to them with the configuration file on there so you don't need to perform all the steps above again.



Boot loader error descriptions

When loading Lite, Data Cleaner+ or Pro to the computer memory some problems may occur. The most common ones are listed below.

If the error shown on the screen is not listed below, please read: [Gathering debug information for support@blancco.com](#)

Output:	Cannot find a valid application image
Description:	Installation problem, some of the data in the media has been corrupted
FIX:	New copy of Blancco (e.g. download the CD image again and check the size)
Output:	Blancco application image damaged, md5sums does not match
Description:	Broken Blancco application image. In other words data has been corrupted.
FIX:	New copy of Blancco (e.g. download the CD image again and check the size)
Output:	Not enough low memory
Description:	Not enough memory under the 1M area. This usually means that extended bios data area (XBDA, EBDA) is too large.
FIX:	Check the bios options and if you cannot make more space in the extended memory area, please contact us at support@blancco.com .
Output:	Not enough memory. Lite, Data Cleaner+ and Pro require more than 32MB of memory in order to work properly.
Description:	Not enough memory (32MB)
FIX:	Increase memory or contact us at support@blancco.com and we will provide an older version of the Blancco software.

Deficient BIOS clock

Sometimes the BIOS clock can be deficient or the battery may have run out. A broken BIOS clock can lower the resale value of a computer. Blancco software uses the following method to determine if the BIOS clock is broken or not: the software informs the user that the BIOS clock has a defect if the date detected is before 1.1.2003. Erasure can be cancelled or can be continued ignoring the deficient BIOS clock.

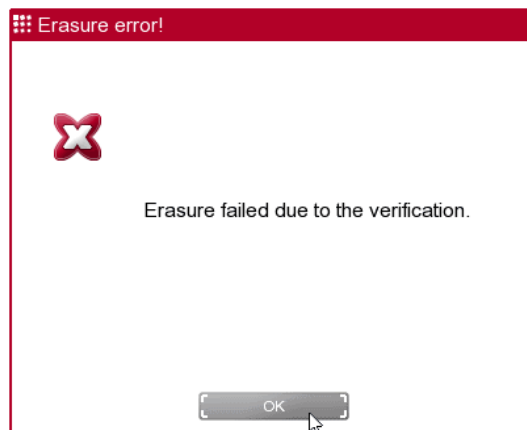
Unable to save report notification

In Blancco – Data Cleaner v3.7 there was a separate partition in the floppy for saving the reports. This feature is no longer supported in the v4.x product family. Please insert a separate floppy, which is formatted and is not write protected into the floppy drive. If needed the report can be saved also to a USB stick.

Erasure failed due to the verification

After the erasure process Blancco client will verify that the erasure has been done in correct manner. This message indicates that the verification of the erasure process has not been performed successfully and there is possibility that some user data can still be found from the HDD.

Blancco client will check the functionality of the erasure process by reading data from several locations from the HDD after the erasure. Verification will fail if some data read from the HDD does not match to the data which was written to the HDD during the erasure process. Failure of the erasure process can be caused e.g. mechanical failure of the HDD or IO level communications.

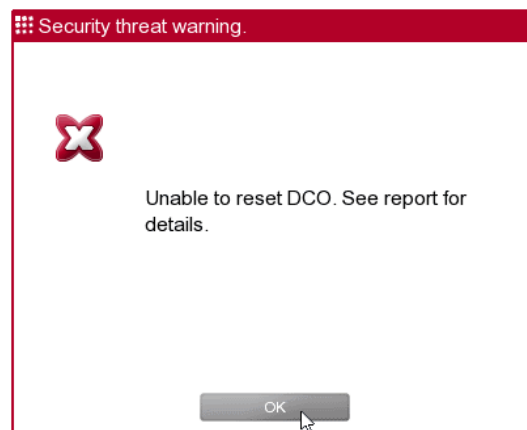


Unable to reset DCO. See report for details.

There might be that there is no way to disable the DCO freezing lock because there is a BIOS protecting mechanism against setting or removing the DCO partition. This usually means that there is no extra partition and the message "Unable to reset DCO. See report for details." will appear.

Please go through following options:

1. Remove automatic detection of hard drives from BIOS and try the erasure again.
2. (If this is too time consuming check the next option) Remove the hard drive and place it into another computer where BIOS DCO 'freeze lock' is not activated.
3. To confirm that there is no extra partitions please check from the manufacturer manual or disk case the number of sectors and make sure that it corresponds to the one detected by Blancco erasure software.



RAID ERASURES

Erasing RAID configurations with Blancco – Pro

Blancco - Pro is capable of overwriting hard disks that are attached to a supported RAID controller. In addition, Blancco – Pro dismantles the RAID arrays and ensures the secure erasure of the entire data surface in all functional hard drives. In practice, Blancco – Pro communicates directly with the RAID controller and removes the RAID configuration, which enables the individual detection of all hard drives (including HDD serial numbers). In addition, Blancco will also detect hot spare hard drives and erase them as well.

Important! When erasing RAID Array hardware that Blancco is not able to dismantle/break automatically Blancco highly recommends that the Array is dismantled manually from the BIOS of the RAID card or with a manufacturer software.

Blancco – Pro has the following drivers with dismantling support

- AACRAID Controllers
- Compaq's SMART Array Controllers
- Compaq's SMART2 Intelligent Disk Array Controllers
- Mylex DAC960/AccelerRAID/eXtremeRAID PCI RAID Controllers
- LSI Logic MegaRAID controllers
- Adaptec / IBM ServeRAID controllers

What to do when dismantling is not supported?

The dismantling feature is not supported in some RAID adapters and the hard disks are handled and overwritten as logical arrays. The following points ought to be taken into consideration during the erasure process:

- The logical arrays that are overwritten must be complete and intact.
- If the server contains RAID 5 or 6 configurations the overwriting pattern will vary due to the parity calculations in which the data contents of two or more hard disks are merged into one "parity hard disk". This parity hard disk acts also as back-up data storage. The most important thing is that the data area is overwritten also from the parity hard disk.
- Hot spares (replacement hard disks, in case an online hard disk gets damaged) will not be overwritten with Pro as they are not part of the logical array. If the replacement hard disk has not been initialized as part of the array it will normally not contain any data unless it has been used earlier in another hardware configuration for saving data.
- A system partition for RAID information within the first hard disk of a logical array will not be erased since the RAID controller does not enable it. For instance, some RAID adapters contain a meta partition in the beginning of each logical array that contains only RAID configuration data. Erasure of the Meta partition can be carried out by attaching the hard disk -pack directly to the motherboard SCSI port. After that the RAID controller has been bypassed.
- As the RAID arrays (e.g. AMI MegaRAID) use new I2O I/O architecture, the detection of the arrays is done twice (using normal protocol and I2O protocol) and the I2O arrays should not be erased. In such situation the user needs to select only the normal arrays for the erasure and reject I2O arrays.
- For eXtremeRAID 2000/3000 and AccelerRAID 352/170/160 firmware version 6.00-01 or higher is required. For the eXtremeRAID 1100, firmware version 5.06-0-52 or higher is required. For the AccelerRAID 250, 200, and 150, firmware version 4.06-0-57 or higher is required. For the DAC960PJ and DAC960PG, firmware version 4.06-0-00 or higher is required. For the DAC960PU, DAC960PD, DAC960PL, and DAC960P, either firmware version 3.51-0-04 or higher is required (for dual Flash ROM controllers), or firmware version 2.73-0-00 or higher is required (for single Flash ROM controllers)

Blancco – Pro has the following drivers without dismantling support

- Adaptec I2O RAID and DPT SmartRAID V I2O boards
- GDT Disk Array/Storage RAID controllers
- Linux Host Driver for EIDE RAID Adapters
- IntelliCache SCSI Adapters
- Software RAID
- Broadcom (formerly ServerWorks)

Please make sure that the firmware in your RAID adapter has been updated recently in order to avoid any unnecessary problems with the RAID controller.

Please find the detailed supported hardware list from our website www.blancco.com under the download section (bottom of the page). If there is any uncertainty regarding RAID erasures or supported RAID adapters, please contact us at: support@blancco.com

ERASING CONFIGURATIONS IF THE HARDWARE IS NOT SUPPORTED

How to erase hard drives if they cannot be detected via the RAID adapter

Depending on the RAID adapter, server configuration or hard drive connector type, the hard drives might not be detected by Blancco – Pro. If you run into such configuration, report it to Blancco and try one of the following suggestions:

1. Attaching hard drives to an integrated SCSI port on a motherboard

Normally, the RAID adapter is the reason why hard drives are not detected. In these cases the fastest solution for erasing the hard drives is to bypass the RAID adapter. Most server computers contain either an integrated SCSI port on a motherboard or an additional standard SCSI card. By attaching the hard drive cable to the SCSI port instead of the RAID adapter the hard drives can be detected without any limitations. This operation also allows an individual detection for each hard drive. When the hard drives are detected the erasure can be carried out normally.

2. Removing hard drives and erasing them in another server

If the server machine does not have an additional SCSI port or adapter, the hard drives can also be erased in another server that has a supported RAID/SCSI adapter. Normally, server hard drives use an easy removal mechanism and hot-plug support. This allows the user to easily remove the hard drives without opening the server covers. When using Blancco – Pro the hard drives with the hot plug functionality can be added to the server even while the software is running in the hard drive detection screen (Step 2/4). All the detected hard drives can be erased without limitations.

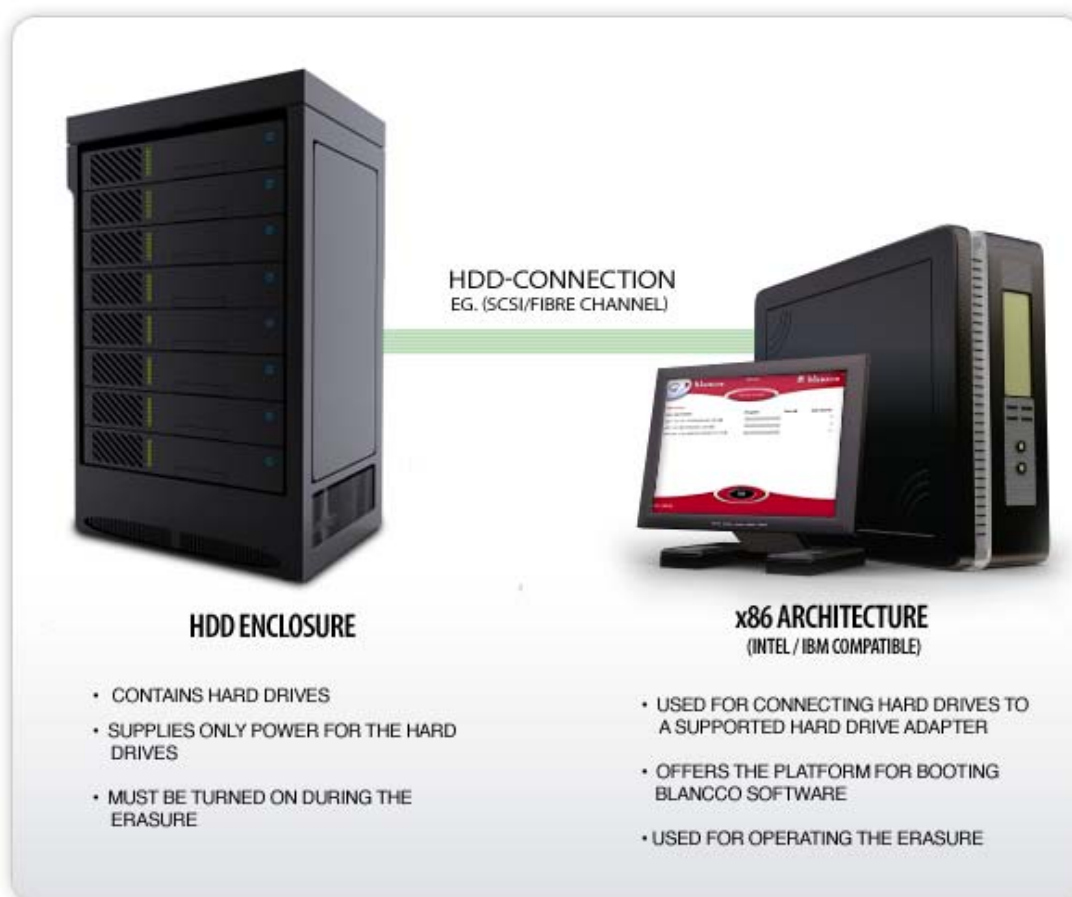
Erasing the hardware that is not supported by Blancco

Since Blancco clients support x86(Intel, AMD, Cyrix etc) based machines there are some servers that might need special arrangements before the erasure can be carried out. Such machines are, for instance, RISC(Sparc, PowerPC etc) - based servers that are using different processor architecture. Most of these servers are reserving a lot of space and moving them around can be challenging. In addition, there could be many hard drives thus making it inefficient to physically remove the hard drives and erase them in another hardware configuration.

Fortunately, HDDs are always the same regardless of the other hardware (i.e. x86/RISC architecture) and Blancco can be used to erase the HDDs by connecting them to another x86-based computer. As a solution, the hard drives can be connected to a supported x86-based machine (erasure station) and erased without the need to remove them physically from the original configuration. The picture below describes how the hard drives from the RISC-based server have been connected to the x86 based server.

More information:

<http://www.blancco.com/presentations/> --> Solution presentations --> Erasure station presentation



Important! Starting from version 4.8 Blancco started to support alternative sector sizes including 520, 524 and 528. Only the standard sector size 512 bytes/sector is supported in the 4.7 versions and earlier. In the case of the hard disk using different sector size and you are using an older version than 4.8 the hard disk must be re-formatted to use sector size 512 bytes/sector. Please contact the manufacturer of your hard disk for a proper formatting tool or contact your sales representative and upgrade to 4.8.

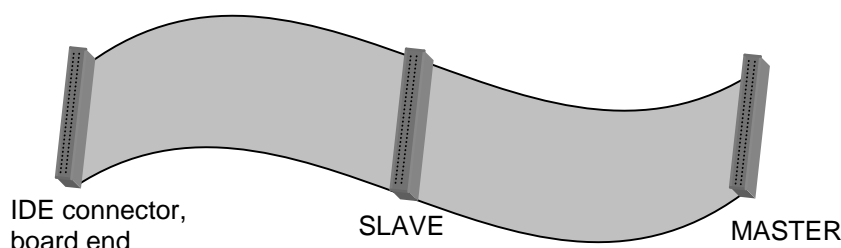
HARDWARE SUPPORT IN BLANCCO – DATA CLEANER+ AND PRO

Instructions for IDE hard drives

IDE hard drives are sensitive to the bus to which they are attached. There are several simple rules for any system where the storage subsystem is IDE-based.

- Try to avoid keeping two hard drives on the same IDE bus. Connecting two hard drives to the same bus causes significant performance loss especially if there is high activity addressed for both devices simultaneously (e.g. as Blancco does during the erasure). If required, you can connect the CD ROM driver cable to the second IDE drive in order to get a secondary bus.
- If you have to attach two IDE hard drives to the same bus make sure that the hard drive jumpers are set correctly. It is essential for the disks to have jumpers set to the right places in order to work properly. Try to avoid Cable Select setting (CS) that is usually set as a default. Modern hard drives are more fault tolerant but if any problems occur, changing the hard drives to MASTER (MA) and SLAVE (SL) often resolves it.
- The order in which the hard drives have been installed is relevant. Please see the figure on the next page that guides the user on how to connect devices correctly to the IDE cable. Even if you have only one device it is highly recommended to attach it to the correct connector!

IDE cable connection:



- Some old IDE hard drives do not contain pins to set the jumpers. In such cases, the hard drive should be mounted on the Master hard drive place. If both of the hard drives are old IDE hard drives and there is only one IDE channel available please check the following things:
 - Test which hard drive works as a MASTER (check from BIOS)
 - Connect the hard drives according to the picture shown above.

Note! If the second hard drive has a master/slave jumper setting possibility, set the hard drive to the slave connector.

SCSI / USB / Serial ATA device support in Data Cleaner+ and Pro

Please find the supported hardware list from our website www.blancco.com under the download -> documents section (bottom of the page).

Note! Blancco – Data Cleaner+ supports Serial ATA adapters without RAID capability. Blancco – Pro is required if you want to erase Serial ATA with RAID Array.

Please note that the hardware support list does not describe specific SCSI, SATA or RAID adapters. The list contains only the chipset of the supported device. While using a CD, network or Preinstall version of BDC+ or Pro, all the other drivers are loaded automatically to the memory.

Note! In the floppy version the SCSI, SATA & RAID drivers must be loaded separately from a floppy disk. You can download the driver disk from our website under the download section: <http://www.blancco.com/>

If you encounter any problems when using the software, please read: [Gathering debug information for support@blancco.com](#).

Fibre Channel / FireWire / RAID / Serial ATA support in Pro

Please find the hardware support list for Fibre Channel, FireWire and RAID from our website www.blancco.com under the download section (bottom of the page).

ABOUT BLANCCO LTD.

Blancco is the global leader in professional data cleansing and end-of-lifecycle solutions. The company has sold millions of licenses and serves users across a wide range of industries, including banking, finance, government, and defence. Blancco's advanced data erasure products provide 100% secure hard drive cleansing and support more than 10 international data erasure standards.

The company's tools also provide the detailed reporting required to meet today's government, industry and vendor privacy and security mandates. Blancco's certified data erasure products are available through the company's website and through resale partners, and are trusted by over 250 recycling, refurbishing and remarketing centres. Founded in 1997, Blancco has nine international offices and supports more than 20 countries.

If you have any questions regarding our products and services, please feel free to contact us.

E-mailing Information:

General information: general@blancco.com

Sales: sales@blancco.com

Connection points to Blancco - Service:

Phone (only for service package): Service engineers can be reached from a dedicated service number during office hours between 8 am and 6 pm (UTC/GMT +2 hours) excluding public holidays

Email and online support forms: Service engineers will respond within 24 hours(only for service package) during weekdays (excluding Finnish public holidays). Enquiries sent during the weekends will get responded to within 72 hours.

Technical support: support@blancco.com

Before contacting support, please check following:

[Gathering debug information for support@blancco.com](mailto:support@blancco.com)

Phone and Fax:

Sales: +358-207-433-850

Support: +358-207-433-860

Fax: +358-207-433-859

Address:

Blancco Ltd.
Länsikatu 15
FIN-80110 Joensuu
Finland

Please visit our homepage (<http://www.blancco.com>) for more information on our products and our local offices around the world.

We are always looking to improve our products. Please let us know if you have any suggestions!

LICENSE AGREEMENT

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Version: 4.8
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