Erasing servers and storage systems with Blancco Drive Eraser

Created date	Updated date	Affects version	Fix version
13 Feb 2023			

General overview

1. Make sure that the system itself is able to detect the connected drives (see the computer's BIOS or disk/RAID controller's setup utility/BIOS). If the system's disk controller is not able to detect the drives, it will mean that the Blancco erasure software will not be able to do it either.
2. Be aware of the hardware's technical limitations! Some disk controllers might have technical limitations regarding the maximum amount of connected drives. If the disk controller's maximum drive limit is reached, Blancco will not be able to detect more drives than the controller is able to present to the system. Some drives might also have a special custom firmware that makes the drives usable only with the original system (disk controller and/or array). This means that if the drives are removed from the original system and connected to another system, they might not function properly. Read the manufacturer's documentation!
3. If the server or the storage system has multiple power sources or modules, make sure that all of them are connected and operational.
4. Make sure that the system's disk controller firmware is updated to the latest version. Newer firmware version usually fixes possible bugs and increases compatibility with newer hardware. Old controller firmware might prevent the controller from working with certain type or sized hard drives.
5. It is recommended that the RAID controller's active RAID build is manually dismantled before Blancco erasure software is started. This should be done especially in cases where the physical drives are not detected properly by the Blancco erasure software (only logical RAID volumes are shown or the amount of connected drives is wrong). After dismantling the RAID build, also make sure that no automatic RAID building options are turned on (this may cause an erasure verification failure).
6. Blancco recommends that only the same type of drives are erased simultaneously. For example IDE, SAS/SATA and SCSI drives should be erased in separate batches. If there are larger batches of drives from the same manufacturer, it is recommended that those are also erased separately. For example: Erase Seagate SAS drives in one batch and Samsung SATA drives in another.
7. If an erasure has been completed for a server with internal drives and an external disk array, the erasure should be divided into two separate runs. First erase the internal drives without the disk array connected. In the second phase, the internal hard drives should be removed and the external array should be erased separately. Disk detection should be verified at the disk controller's end always, before starting the Blancco erasure software.
8. It is important that the correct Blancco erasure software image is used!
   - Make sure that the Blancco Drive Eraser ISO image is configured to remove "logical disks" (Drive Eraser Configuration Tool -> Load the ISO image -> Security -> Logical Disk (RAID) -> Remove).
     64 bit image is recommended to be used by default with servers that have high amount of drives and more than 4 gigabytes of RAM memory.
     - If 64 bit image fails, try request the 32 bit version from Blancco Technical Support (unless you have it already). Please note that this should be a rare instance and a much older version of BDE (6.5) will be sent as 32 bit ISOs are not created for latest versions.
9. If all the steps above fail please contact Blancco's Technical Support team by creating a support ticket.
   - Make sure that the following information is included:
     - Hardware information: computer model, disk controller model, disk model, etc.
     - Detailed description of the issue
     - Blancco Drive Eraser issue report (or Blancco Drive Eraser crash report)

Specific Scenarios, Tips and Troubleshooting

Storage System/Array/SAN Erasure

The basic principle for storage systems in general is to have a host server available with a compatible Host Bus Adapter(s) (HBA). The correct HBA model depends on the disk array's fiber interface and the link speed. The HBA must have direct access to the physical drives. In order to do all that, the active disk processor enclosures or controller units and switches between the server and drives should be bypassed.

Here are some tips and suggestions to ensure that your next array erasure using Blancco completes successfully:

- Make sure that the erasure personnel have read the erasure software user manual for the Blancco product that they are going to be using and that all software minimum requirements are met.
  - Review your hardware and ensure you have any and all necessary cabling and HBA's for your specific situation.
- Fiber HBA's with removable SPF modules work best and offer the greatest flexibility in ensuring connectivity that can be achieved between the HBA and the array.
- As a general guideline Blancco recommends initially erasing just one or two drives to ensure the process completes successfully. Should any errors occur, erasing a small number of drives will not consume large quantities of licenses and cause delays for the erasure project.
- Additionally, as a general guideline Blancco recommends starting an erasure process and waiting until all the drives start progressing to at least 1% before walking away from the erasure. This reduces the chance of any possible "hangs" which, upon returning could require restarting the erasure thus taking more of your time.
- If possible Blancco recommends erasing similar and same size drives at the same time.
- Identifying Bad Drives: Sometimes, in large arrays, identifying one particular drive that is causing problems (perhaps due to the drive failing physically) is difficult. For example, Blancco may indicate that drive 47 has an issue. However, physically checking 200 drives for one particular serial number is an onerous task.

- With Blancco Drive Eraser and newer, it is possible to "blink" a particular drive's LED. Read more about this feature from Blancco Drive Eraser user manual's "Locating HDD's" chapter.
- There are a few different processes that can help this as well:
  - It is possible that the numbering of the arrays on the Blancco screen may correspond to the reverse order of the attached enclosures. Take for example, 9 enclosures with 12 drives each totaling 108 drives. The last enclosure in the chain (i.e. furthest from the enclosure with the connection to the HBA) may contain disks 1 through 12, the next enclosure disks 13 – 24 and so on up the chain with the final enclosure (with the connection to the HBA) containing the 108th disk. In this way your search can easily be narrowed, but not all setups will function in this way.
  - Another option is to make the drives appear in order on the Blancco screen. The user can plug the drives in at the HDD detection screen one by one, for example starting with drive 1 in the 1st enclosure. That way the drives will be detected so that for example the 5th detected drive is really the 5th drive in the batch, and makes it easier to identify the possible "bad drives".
    - Note that with 100+ drives in an array, this process may not be efficient, as the system may want to go through a hardware "re-discovery" after a new drive is inserted.
- Simultaneous SAS/SATA HDD erasure requires more RAM from the host system. For erasure clients 4, 5 and 6, it is recommended to have at least 30 MB of RAM available per SATA/SAS HDD. For example, if the disk array contains 45 drives, reserve at least 2GB of free memory for the erasure. ((45 x 30MB) + 512MB (Blancco application) = 1862MB)
- When erasing large quantities of HDDs, make sure to have sufficient disk controller / HBA (Host Bus Adapter) bandwidth in order to maximize the erasure speed. For Fiber Channel drives, the correct HBA model depends on the disk enclosure's fiber interface and the link speed.

Disk Controller

The disk controller part in the storage system is typically the biggest challenge. For the controller may not allow direct access to the physical disks. If the controller can't be bypassed, the only possibility is to erase the disks on a logical level by or removing the disks or erasing them in an expansion enclosure. Below is an example setup used successfully to erase a storage system.

IBM DS8100

Direct connection to the DS8100 physical drives in the disk arrays should be possible with for example:
• HP DL380 G5 boot server
• Blancco Drive Eraser
• Qlogic QLE2560 8Gb PCIe Fiber Channel HBA (with removable SFP module). Also known as HP StorageWorks 81Q PCIe Fiber Channel HBA (Part number AK344).
• SFP Fiber cable for connection to the first disk array enclosure in the storage system. The disk array enclosures can be looped/daisy chained together so that all drives (up to 256) are detected at once.

The Disk Array Enclosures should be first disconnected from the IBM storage processor enclosure (if the DS8100 SAN is still in its original configuration). If it is possible to present the physical drives on the DAEs to the HBA, also Blancco should be able to see them.

In case the direct access to the physical drives through Fiber Channel is not possible, there is an option to erase the drive as LUNs on logical level. In some cases LUN level erasure may be the preferred option. For example if the disks are erased on physical level, the possible metadata or disk formatting information will be erased, and the system cannot re-use the disks before the drives are re-formatted and the data is re-written. This may require special service thru serial console connection which may be only available for the OEM service personnel. With Blancco LUN it is possible to erase the drives on logical level using the original fiber channel or iSCSI connections. Blancco LUN is designed to erase individual Logical drives/units (LUNs) in an active storage environment (while the storage is still in production use). Blancco LUN can be run on a Windows or Unix based host, which has access to the dedicated LUNs. More information about Blancco LUN Eraser can be found from here: https://www.blancco.com/products/lun-eraser/

Troubleshooting

1. Check to see if the disks are shown in the HBA BIOS or setup utility. If the disks are not shown, Blancco Drive Eraser will not be able detect or erase them.
   - Typically you should see a text such as: "Press the X key to get into the HBA BIOS utility menu.". For some Emulex HBA's those keys are [<Alt> and E] or [<Ctrl> and E]
   - Check the Internet for the method for accessing the BIOS for your particular HBA.
2. Check that you are using the correct and most up-to-date Blancco Drive Eraser image.
   - Fiber Channel and SAS HBAs are supported by Blancco Drive Eraser.
3. If the HBA doesn't list any drives, make sure that:
   - The Fiber channel link is set to the same speed on both ends.
   - The system is properly un-initialized.
   - The daisy chained disk enclosures are set in the correct order. For example with EMC arrays the enclosures must be color/number coded so that the first enclosure is number 0, next 1, then 2, etc.
   - Try reducing the number of disk arrays connected at one time.
   - Try connecting just one disk enclosure at a time if possible.
   - If the BIOS is not detecting the disks, follow the manufacturer's procedure for your particular HBA to update the BIOS to the latest revision.
     - Note: this can be done ahead of the scheduled erasure if the HBA is being added to the server for the erasure.
   - Drive Eraser 7.x.x, 6.x.x and 5.x.x may have been unable to dismantle an array and does not see any drives. When each drive was in its own RAID0 Drive Eraser will most likely detect the drives and they will also be able to be erased but will not see the drive serials (this issue persists with many RAID controllers). Drive Eraser 7.x.x and 6.x.x will be able to see the serial numbers after dismantling array.
   - For further info, Drive Eraser 5.x.x is identical in this regard except it does not see the drives unless each disk on its own RAID0, but even after dismantling the raid manually it cannot see the serial numbers.