Echo Plus™ User's Manual

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MAN-Echo Plus

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Logicube Technical Support Contact Information

1. By website: www.logicube.com
2. By email: techsupport@logicube.com
3. By telephone: 1 - (818) 700 8488 ext. 3 between the hours of 7am –5pm PST, Monday through Friday, excluding U.S. legal holidays.

1. Introduction to the Logicube Echo Plus

Introduction

Thank you for buying the Logicube Echo Plus. You are now the proud owner of a state-of-the-art IDE and SATA disk cloning device. The Echo Plus is designed to be easy enough to be used by a novice, yet offers many professional features that are not available anywhere else.

The Echo Plus copies the contents of one hard disk drive to another. The first drive is typically called the **Master**, while the second is termed a **Target**. It performs the copy at speeds that are typically 32 to 64 times faster than they would be on a PC. The Echo Plus first analyzes the partitions on the Master, then acts according to a user set mode. Depending on the mode, the unit will adjust structures to ensure the validity of the Target. This process is often called **disk cloning**.

Both the Master and Target drives connect directly to the Echo Plus thorugh the IDE or SATA ports, providing the fastest data path possible

System Description

In the box you will find the following items:

- The Echo Plus unit
- An external power supply
- Two 40-pin flat UDMA cables (5” long). These connect to Master and Target drives
- Two power cables (5” long). These supply power to the drives
- Two 9” SATA (Serial-ATA) cables. These connect SATA drives to the unit
- A “Mini-B” USB cable - Used to update the unit’s embedded software

- A software CD-ROM that includes:

  A. A backup copy of the current Echo Plus software (called soli.h86)

  B. VCP Drivers that facilitate the software download through the USB port of a PC

  C. A copy of the manual in .PDF format

- A nylon carrying case

If any of the above is missing, please call Logicube (818 700-8488 x3) immediately and replacement parts will be shipped to you right away.

2. Getting Started

Connecting Drives to the Logicube Echo Plus

IDE Drive Installation

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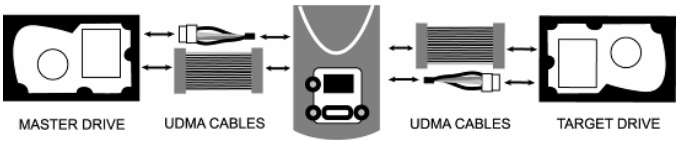


Figure 1. IDE connections.

1. Lay the unit on a flat non-conductive surface. Note the connectors on the left and right of the unit. The Master drive always connects to the left side, while the Target is connnected to the right side. (Arrows on the unit's case show the direction of data flow).
2. Plug one of the 5 inch UDMA cables into the 40- pin IDE connector on the left, the cable is clearly marked as to which side plugs into the duplicator. Plug one of the 5" power cables to the power receptacle. Make sure that the clip on the 4-pin plug lines up with the small tab on the socket.

   IMPORTANT NOTE: The hard drives are not powered until you actually start a copy operation. Connect the Master drive to the UDMA and power cables.

   IMPORTANT NOTE: The supplied cables are NOT standard IDE cables like the ones found in a PC. Do not attempt to use these cables in a PC nor to use PC cables with the Echo Plus unit. Although damage to the drive is unlikely, the Echo Plus will not function correctly.

4. Connect the other set of UDMA/power cables to the connectors on the right side of the unit following the same information as step 2.
5. You may now connect a Target drive to these cables. Target drives can either be placed on a suitable surface (non-conductive, or antistatic) or be left inside an open-cover PC.

   NOTE: Make sure that the Master and Target drives are jumpered as **Single Master.**

   NOTE: Please call Logicube to acquire longer data and power cables, if needed.

SATA Drive Installation

Please refer to Fig. 2 below.

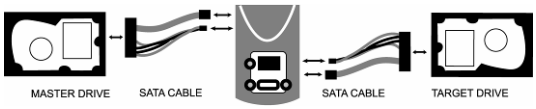


Figure 2. SATA connections

1. Lay the unit on a flat non-conductive surface. Note the connectors on the left and right of the unit. The Master drive always connects to the left side, while the Target connected to the right side. (Arrows on the unit's case show the direction of data flow).
2. Plug one of the SATA cables into the SATA and power connectors on the left. Make sure that the clip on the 4-pin power plug lines up with the small tab on the socket.

   NOTE: The power outlet is not powered until you actually start a copy operation.
3. Connect the Master drive to the SATA cable.

   IMPORTANT NOTE: The supplied cables are NOT standard SATA cables like the ones found in a PC. Do not attempt to use these cables in a PC nor to use PC cables with the Echo Plus unit. Although damage to the drive is unlikely, the Echo Plus will not function correctly.

   NOTE: Jumper settings do not need to be changed on SATA drives.

4. Connect the other SATA cable to the connectors on the right side of the unit following the same information as step 2.
5. You may now connect a Target drive to this cable. Target drives can either be placed on a suitable surface (non-conductive, or antistatic) or be left inside an open-cover PC.

   NOTE: Jumper settings do not need to be changed on SATA drives.

   Things to remember:

   - The Echo Plus unit (but not the drives) is powered by connecting the external power supply to the power input at the top. There is no On/Off switch. When requested to power-cycle the unit, please pull the plug, wait a couple of seconds and push it in again. The unit boots and is ready to use in about 3 seconds. Wait for the Main Screen to appear.
   - The Echo Plus supplies power to both drives during a cloning session. There is no need to connect an external power source to the drives.
   - It is OK to connect and disconnect Master or Target drives while the Echo Plus is powered. However, do NOT connect or disconnect drives in the middle of a cloning session. The Status light will typically blink to indicate the unit is cloning.

Echo Plus Overview

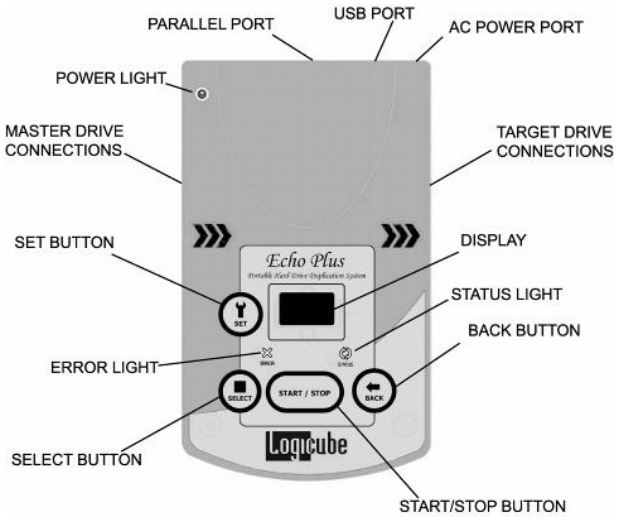


Figure 3. Echo Plus

Operation Buttons

START/STOP Button – Press it twice to begin a cloning operation using the current settings; press the START/STOP button in mid process to abort it. A single key stroke presents a preview screen where you can see the current setting, and decide whether to press it again to begin the capture, or back out to reconfigure.

SET Button – This button brings you to the settings screen where you can change capture modes and other settings of the unit.**BACK** Button – This button allows you to go back in the menu system or cancel out of a given operation.

SELECT Button – This button allows you to select an option, scroll through multiple available options or select a sub-menu.

In addition to the buttons there are also three indicator lights:

POWER Light – This stays lit whenever power is applied to the Echo Plus unit.

STATUS Light – This blinks during a cloning session to show that the clone is running.

ERROR Light – This lights up whenever the cloning session is stopped prematurely. An error message will appear on the display.

3. Cloning Modes and Settings

User Interface

Main Screen

The Echo Plus boots to this screen. It shows the software version currently loaded on the unit. After thirty seconds, a **Screen Saver** will appear. Press any button to go back to the screen.

About Screen

Press the Back button to go into the About Screen. This is where the unit's Firmware version appears as well as Logicube's website information. Press the Back button again to go back to the Main Screen.

NOTE: The firmware version displayed on your Logicube Echo Plus may be different than the picture above.

Using the Settings Menu

Pressing the Set button repeatedly will allow you to scroll through the Echo Plus Settings. Here they are in order:

Copy Modes

The Echo Plus has two major cloning modes; CleverCopy and Mirror Copy.

CleverCopy Mode

This is the default mode. It clones ALL partitions on the Master drive to the Target drive, automatically deciding the fastest method possible for each partition found. It scales certain partitions (FAT16/ 32, and NTFS) to fill the Target in its entirety and makes all the necessary adjustments to ensure a valid and bootable Target drive.

If an unknown partition is encountered on the Master during the copy session, that partition retains its original size.

Mirror Mode

It simply makes a mirror copy of the Master drive. It does not adjust any values. This mode is recommended when all else fails an even then only between similar geometry drives. It is also used for unknown partition types (i.e. UNIX, LINUX, etc). If the Target is larger than the Master, the session will complete when the last sector of the Master is reached. If the Master is larger, the unit will complete when reaching the last Target sector.

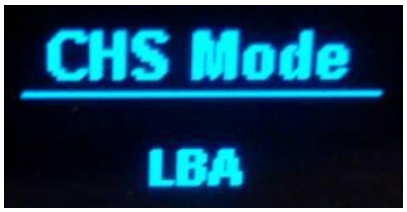
NOTE: Although the subsequent setting screens come up and can be changed, they are irrelevant for Mirror Clone and ignored during the cloning session.

NOTE: Some PC manufacturers will place a “hidden” partition on the drive. This partition usually contains recovery or diagnostic information. The

Echo Plus will automatically Mirror Clone any hidden partitions.

Press the Select button to cycle between the two modes. Press the Set button to go to the next screen.

CHS Mode



CHS Mode sets the geometry (Cylinder, Head and Sector) translation used on the Target drive. CHS information is stored in the partition table of the hard drive and is used by the BIOS to determine from which partition to boot.

The correct setting will depend upon the capacity of the Target drive and on the BIOS of the PC in which it will be used. Check with the hard drive and PC manufacturer to determine which CHS mode is best as different BIOS systems use different translation methods for large (over 528 MB) capacity drives.

Following are the CHS modes supported by the Echo Plus™:

LBA (Default) – This CHS Mode will work for most hard drive and PC combinations and should be used unless otherwise indicated.

Large – Also known as Extended CHS (ECHS) mode.

LBA-1, LBA-2, Large-1 and Large-2 – These settings instruct the Echo Plus to “shave off” one or two cylinders from the total drive size when constructing the Target partition tables.

NOTE: It is important to use -1 or -2 settings for all Windows 2000 and Windows XP installations. These operating systems use the unallocated space to store certain tables required for Active Directory and sometimes for Dynamic Partitioning.

NOTE: Most of the time, blocking out one cylinder is enough but two may need to be blocked out to achieve good results.

Press the Select button to cycle between the two modes. Press the Set button to go to the next screen.

Verify

Both CleverCopy and Mirror will allow you to set the Verify option. If Verify is set to Yes, the Echo Plus can detect bad sectors on the Target. Data cloned onto such sectors may be unreadable. Engaging the verification feature slows the speed of cloning by a small amount.

If a bad sector is detected on the Target (with Verify turned on), the cloning process will abort with an error message. Logicube recommends not using that drive as new defects are likely to develop.

NOTE: The Echo Plus always checks the Master drive for bad sectors during a cloning session. It is designed to skip any bad sectors that are found. The unit will skip up to 200 bad sectors before it stops with an error message.

Press the Select button to cycle between the two modes. Press the Set button to go to the next screen.

Speed Setting

The speed setting provides the option to set the speed at which an operation will be performed at.

UDMA-4 - The software performs a test procedure to determine the fastest setting that the drives will tolerate while streaming data from one to the other. When set to UDMA-4, all lower speed grades will be tested (UDMA 0-4, PIO 0-4).

UDMA-3 - Force the unit to use at most this speed. Set the unit to this mode in some rare situations where one or both drives do not support the higher speeds, and “misbehave” during automatic speed benchmarking.

UDMA-2 - Same as UDMA-3.

UDMA-1 - Same as UDMA-3.

UDMA-0 - Same as UDMA-3.

PIO-Auto (PIO-4) – Force the unit to use this as the highest speed (PIO-4). Set the unit to this mode in some rare situations where one or both drives do not support higher speeds, and “misbehave” during speed benchmarking.

PIO-Medium – This is a fixed value that almost all drives will tolerate. It will result in copying speeds from about 200 to over 500 MB per minute depending upon the characteristics of the drives.

PIO-Slow – This is a speed value that all drives will be able to tolerate. It supports copying speeds from 100 to over 300 MB per minute depending on the characteristics of the drives.

NOTE: Use the MEDIUM or SLOW modes if you encounter drive “time-outs” or if you are cloning older drives. Many 2.5” notebook drives require this setting.

When multiple copies are required, all you need to do is change the TARGET drive, and press the Start/Stop button. Your last selections are used.

Cloning Screens

Preview Screen

Once the desired settings are in place, press the **Start/Stop** button once to enter the Preview Screen. This screen displays the chosen settings. Press the **Back** button to go back to the Main Screen, the **Set** button to go to the Settings or the **Start/Stop** button to begin cloning.

Progress Screen

This screen is displayed during the cloning session itself. It shows the speed (in GB/min), time remaining and percentage of drive cloned.

End of the Cloning Session

When the Echo Plus is finished with a successful Clever or Mirror cloning session, the drives will turn off and a “clone successful” message will appear on the display. At this point the drives can be removed.

If the unit stops prematurely with an error, the error message will display instead.

Cloning Windows 7

With the release of the Windows 7 Operating System, Microsoft has added some security features to protect the integrity of the partition. These features can cause problems when cloning Windows 7 with Clever Clone mode.

This section will discuss the best ways to clone Windows 7 hard drives.

SCENARIO 1: When the Master and Target drives are the same size

With this scenario, you can use Clever Copy mode to clone the Windows 7 hard drive. Since the Master and Target drives are the same size, the size of the partitions should remain the same.

SCENARIO 2: When the Master and Target drives are different sizes

With this scenario, you must use Mirror mode to clone the Windows 7 hard drive. The Logicube Echo Plus is unable to Clever Copy Windows 7 drives if the Master and Target drives are different sizes.

Cloning Windows Vista

With the release of the Windows Vista operating system in late 2006, Microsoft has added some security features to protect the integrity of the partition. These features can cause problems when cloning Vista with Clever Clone mode.

This section will discuss the best ways to clone Windows Vista hard drives. These instructions apply to all flavors of Vista (Home Basic, Home Premium, Business and Ultimate).

Vista Installations

The following Vista installations are supported by Clever Copy mode:

- Supports a standard Clever of Vista with one partition.
- Supports Vista with extended partitions
- Supports RE (Recovery Environment) + Vista but only if RE is built with a partition tag of 0X27

NOTE: New software updates are being developed all the time. Please check www.logicube.com periodically for new software updates.

Cloning Scenarios and how to handle them

A Simple Vista partition with logical drivers

This is the most common cloning scenario. No extra treatment is required to prepare the Master drive.

Hidden RE (Recovery Environment) Partition with Vista

Assuming the RE partition is of type 0X27 (as is specified by Microsoft®), no special handling is required to yield bootable target drives. The Echo Plus will detect and copy the RE partition correctly followed by the Vista bootable partition.

Other VISTA Scenarios

Other cloning scenarios may require the use of Selective which is not supported on the Echo Plus™.

After performing a Clever Copy of Vista under any scenario, “Check file systems” will display the first time the drive is booted. Windows will run CHKDSK as a normal operating procedure.

4. Software Loading Instructions

Logicube Echo Plus Software Updating Procedures

Important Notes Regarding Software Versions

When downloading software for the Echo Plus, it is important to download the correct version. The color of the display on the Echo Plus will determine the version of the software to download.

1. If the color of the display has blue letters, download software version 2.6.
2. If the color of the display has green or orange letters, download software version 2.5.

Software Loading

Loading or updating software for the Echo Plus comes in four sections:

- Installing VCP Controller and drivers from the Echo Plus CD-ROM.
- Attaching the Echo Plus to the PC
- Determining the COM Port for the Echo Plus
- Configuring Hyperterminal or other third party terminal program to communicate with the Echo Plus and installing/loading the software to the Echo Plus

Installing the VCP Controller Software and drivers

Windows 7/Vista

1. Insert the Echo Plus CD-ROM in the PC. If the installation wizard automatically comes up, cancel it. Browse the contents of the CD-ROM and go into the ***X:\Windows Vista & 7\TUSB3410 Single Driver Installer v3.3*** folder

(where X:\ is the drive letter for the CD-ROM).\

NOTE: If your CD-ROM does not have the Windows Vista & 7 folder, you can download the Windows Vista and 7 drivers from Logicube's website.

2. Run the ***Setup.exe*** file from the folder above.
3. Accept the License Agreement and continue the rest of the installation.
4. After the installation, browse to ***C:\Program Files\Texas Instruments Inc\TUSB3410 Single Driver Installer*** (for Windows Vista/7 32-bit) or ***C:\Program Files (X86)\Texas Instruments Inc\TUSB3410 Single Driver Installer*** (for Windows Vista/7 64-bit) and run ***Setup.exe***.
5. Accept the License agreement and continue with the rest of the installation.
6. The VCP Controller and drivers will automatically install on your PC. Click ***Finish*** when the installation has finished.

Windows 2000/XP

1. Insert the Echo Plus CD-ROM in the PC. The installation wizard should automatically come up. If not, run Setup.exe from the root of the CD-ROM.
2. Accept the License Agreement and continue the rest of the installation.
3. You may get a prompt warning you that the program was not validated by Microsoft. Select ***CONTINUE ANYWAY*** to move on.
4. The VCP Controller and drivers will automatically install on your PC. Click ***Finish*** when the installation has finished.

Windows 98/ME

1. Insert the Echo Plus CD-ROM in the PC. Run Setup.exe from the "Windows 9x Driver" folder of the CD-ROM.

2. Accept the License Agreement and continue. The VCP Controller and drivers will automatically install on your PC. Click ***Finish*** when the installation has finished.

Attaching the Echo Plus to the PC

Windows 98 / ME / 2000 / XP / Vista / 7

1. Power the Echo Plus and wait for the Main Screen.
2. Attach the USB cable to the Echo Plus and the PC.
3. The PC will automatically detect the Echo Plus and bring up an “Add new Hardware” Wizard.
   a. If you are running Windows 98/ME, the wizard may ask for the location of the USB drivers. Point it to the following path: ***C:\Program Files\Texas Instruments\TI34109***
   b. If you are running Windows 2000/XP/Vista/7 the wizard will automatically install the right drivers.

   NOTE: You may get a prompt warning you that the program was not validated by Microsoft. Select ***Continue Anyway*** to move on.
4. This will allow Windows to see the Echo Plus properly and assign a COM Port to it.

   NOTE: Keep the Echo Plus powered on and connected to the PC until instructed otherwise.

Determining the COM Port for the Echo Plus

The easiest way to determine the assigned COM Port for the Echo Plus is to look at Device Manager. There are several different ways to access Device Manager, depending on the Operating System. Depending on your Operating System, Listed below are the ways to access Device Manager.

NOTE: The Echo Plus must be powered on and connected to the PC for the COM Port to be seen.

For Windows 7:

Click ***Start*** then click ***Control Panel***. Click either ***Device Manager*** or ***System and Security***, then ***Device Manager*** (in the System section).

For Windows Vista:

Click ***Start*** then click ***Control Panel***. Click either ***Device Manager*** or ***System and Maintenance***, then ***Device Manager***.

For Windows XP:

Click ***Start*** then click ***Control Panel***. Click either ***System*** or ***Performance and Maintenance***, then ***System***. Click the ***Hardware Tab*** then click the ***Device Manager*** button.

For Windows 2000:

Click ***Start***, point to ***Settings***, then click ***Control Panel***. Double-click the ***System*** icon. Click the ***Hardware*** tab. Click the ***Device Manager*** button.

Windows 98/Me:

Click ***Start***, point to ***Settings***, then click ***Control Panel***. Double-click the ***System*** icon. Click the ***Device Manager*** tab.

Once Device Manager is open, expand the section labeled ***Ports (COM & LPT)***. The Echo Plus will appear next to the correct COM Port.

Configuring Hyperterminal or other third party terminal program and installing the software

Hyperterminal comes installed with Windows 98, ME, 2000, and XP. If you are using Windows Vista or 7 you will need to download a third party terminal program.

Before continuing, follow these steps to prepare the Echo Plus for the software update:

1. Disconnect the AC adapter from the Echo Plus. Keep the USB cable attached between the Echo Plus and the PC.
2. Press and hold the ***START/STOP*** button while re-connecting the AC adapter to the Echo Plus.

   NOTE: If the color of the display on your Echo Plus is green or orange you will see 'Software Load. Press Select to Start'. If the color of the display on your Echo Plus is blue you will see a pixelated screen (several pixels will be lit up, but no letters or words will be seen). ***DO NOT PRESS THE SELECT BUTTON YET***.

Windows Vista/7

Windows Vista and 7 do not have a built-in program that will allow us to connect with the Echo Plus. A third party program must be used. In these instructions, we will use Tera Term.

1. Download Tera Term from www.logmett.com.
2. Install the software using the default settings except on the fourth screen. Change the selection from “Standard Installation” to “Compact Installation”.
3. When the installation has finished, run Tera Term from your Start menu. The ‘New connection’ window will appear. Click the ***Cancel*** button.
4. From the menu system, click ***Setup*** then ***Serial port…*** The serial port setup window will appear.
5. Set the following settings then click ***OK***:
    a. Port: Use the COM Port the Echo Plus is assigned to
    b. Baud rate: 115200
    c. Data: 8
    d. Parity: none
    e. Stop: 1 bit
    f. Flow control: none
6. From the menu system, click ***File*** then go to ***Transfer*** then ***XMODEM*** then ***Send…***
7. Browse to the folder where you extracted/unzipped the soli.h86 file and select the sol8.h86 file. ***DO NOT click OK yet***.
8. On the Echo Plus, press the ***SELECT*** button.
9. On the PC, make sure at the bottom of the window ***checksum*** is selected. Click ***OK***.
10. A progress window will appear and you should see the number of packets, bytes transferred, and percentage count upwards. When the process is complete, the progress window will disappear and you can close Tera Term.
11. Disconnect the AC adapter from the Echo Plus then reconnect it back. The Echo Plus will boot up and display the current version of the software during the boot process.

Windows 98/ME/2000/XP

1. Go to Start - Programs - Accessories - Communication - Hyperterminal.

2. Choose “File - New Connection” or follow the connection wizard if it comes up automatically.
3. Name the Connection “Echo Plus” and choose an icon.
4. In the next screen, choose the COM Port assigned to the Echo Plus. You can also refer back to Windows Device Manager to determine the correct port.
5. In the next screen, set Bits Per Second: 115200, Data Bits: 8, Parity: None, Stop Bits: 1 and Flow Control: None. Click ***OK*** when finished.
6. In the menu system, click ***Transfer*** then ***Send File…*** The ‘Send File window will come up.
7. Browse to the folder where you extracted/unzipped the soli.h86 file. ***DO NOT click Send yet***.
8. On the Echo Plus, press the ***SELECT*** button.
9. On the PC, change the Protocol to ***1K XMODEM*** then click ***Send***.
1. Browse to the folder where you put soli.h86. Set “Protocol” to “1K XMODEM” or “XMODEM”. Click OK.
2. A progress window will appear and you should see the number of packets count upwards. When the process is complete, the progress window will disappear and you can close Hyperterminal.
3. Disconnect the AC adapter from the Echo Plus then reconnect it back. The Echo Plus will boot up and display the current version of the software during the boot process.

5. Frequently Asked Questions and Answers

FAQ's

Q. What are partitions?

A. ***Partitions*** are areas on the drive that define a storage unit. Each partition is represented by a drive letter at the operating system level (e.g. C:, D:,...). For that reason, partitions are commonly called ***logical drives***, or ***volumes***. A partition is also associated with ***a file system***, or a structure for laying out files on the partition. Hundreds of different types of file systems have been designed through the years. Only a handful are in common use. Among those are FAT16, FAT32, and NTFS.

FAT16 – The file system used by DOS since version 3.3. This file system can be at most 2GB in size, and can be used under DOS, Win3.1. Win95/98/NT, Win2000, and XP. FAT is the acronym for File Allocation Table, with entries that are 16 bit wide, hence the FAT16 name.

FAT32 – Supported by Win98, Win2000 and XP. Entries in the FAT are 32 bits each,thus eliminating the 2GB limit and offering an improved space efficiency.

NTFS – In use by Windows NT, Win2000 and WinXP. Offers improved access speed,and some security and recoverability features.

Q. How does the Echo Plus determine the size of partitions on the Target drive?

A. In the default CleverCopy mode, all known partitions (FAT16/FAT32/NTFS) are scaled proportionally to the ratio of Master/Target size. All unknown partitions (e.g. HPFS, UNIX etc.) are mirrored, that is they maintain their size. Please note that FAT16 partitions cannot exceed 2.1GB when scaled up, nor be smaller than 32MB when scaled down.

Q. Can the Echo Plus defragment a partition?

A. The Echo Plus will resort to defragmenting a FAT16 or FAT32 partition if the partition is scaled down (cloning to a smaller drive). There is no way to manually perform a defrag operation on a drive.

Q. Can the Echo Plus clone to dissimilar drives?

A. Yes. The Echo Plus will take care of all the necessary adjustments of Target drive structures to ensure the drive (of any size) will be valid and bootable. Many mixtures of Master and Target. drive sizes were tested and found to be valid. The same is true for all Master drives that contain FAT16/FAT32/NTFS type partitions. Unknown partition types are cloned in mirror mode, and typically require identical (or very similar) Master and Target drives to guarantee a successful clone. of the partition. It such cases, the Echo Plus "engages" a more complex algorithm to ensure proper alignment of structures on the Target. This results in a slower process.

Q. Why do I sometimes see transfer speeds as fast as 1800MB/min., and other times as slow as 200MB/min.?

A. There are many factors that determine transfer speed:

The age of the drives – The speed of the operation is governed by the slowest drive in the system. If an old drive is used, chances are it cannot sustain high transfer speeds. Newer drives have faster electronics and larger caches, and can sustain rates as high as 16MB/sec.

The type of operation performed – When cloning FAT16 or FAT32 partitions, it is sometimes necessary to change the cluster class

Master drive with bad or weak sectors – The system will attempt to skip bad or weak sectors found on the Master drive. This is a time consuming operation that could cause the overall speed of cloning to drop. Once the bad sector is skipped, the cloning session will continue.

Q. Can the Echo Plus clone file systems such as UNIX, and HPFS?

A. Yes, but results are guaranteed only if cloned between identical drives and using the Mirror mode. However, it is reported that UNIX partitions will self-repair upon the first boot.

Q. Do Target drives have to be partitioned and formatted prior to copying?

A. No. Target drives need not be partitioned or otherwise treated. The Echo Plus disregards everything on the Target drive, and re-formats and partitions the Target on-the-fly.

Q. My Target drive will not boot? Why?

A. Please check several things:

If the Target drive is bigger than 4GB, and is hosted by a PC with a Phoenix BIOS dated earlier than Nov. 1997, you may need to set the CHS translation setting to Large, and try to clone again. The same setting (Large) applies to target drives that reside inside a Compaq PC. If this is not the case, please check that the above setting is NOT set to Large, but rather to the default setting: LBA.

The Master drive is corrupted. This may not show-up with casual booting of the Master, but problems such as cross-linked clusters can prevent booting.

Q. All but the first partition is missing from the Target drive? How did that happen?

A. This is usually a result of a wrong CHS translation setting (LBA or LARGE).

Q. How does the Echo Plus handle bad sectors on the Master and Target?

A. Bad (or "weak") sectors on the Master are handled in the following way:

The Echo Plus will attempt to skip any bad Master sector encountered during the cloning session. In rare cases, the bad sector cannot be skipped, and the unit will abort the operation. Bad sectors on Targets are handled as follows:

- If the Verify setting is disabled, the Echo Plus will not detect bad sectors on the Target. Note, however, that newer drives use automatic reallocation and will rarely exhibit a bad sector, and thus reduce the probability of a problem to a negligible amount.
- With the Verify setting On, the Echo Plus will abort the operation upon detecting the first bad sector.

Q. Are NT 4GB FAT16 partitions supported?

A. Yes, through Mirror Clone Mode only.

Q. How does the Echo Plus handle NT Security Identification ID (SID) duplication issues?

A. The Echo Plus duplicates the SID. It is recommended that a SID changer be installed on the Master drive, so that the next time the Target is booted-up, all SID's will be replaced with fresh ones. Any one of a number of freeware and for- fee SID changers can be used.

Q. Can you briefly explain the difference between mirror copy and CleverCopy?

A. Mirror copy merely copies all sectors in a given partition (or drive) from the beginning to the end. It does not look at drive structures, and can thus copy any type of known or unknown data. Since Mirror copy does not determine where useful data starts and stops, it ends up copying every sector on the drive, a time consuming operation. CleverCopy analyzes the drive structures, and copies only sectors that are occupied by useful files and data. It also adjusts the various drive structures to assure a valid and fully partitioned Target drive. CleverCopy is by far the most recommended mode of cloning.

Q. Can I clone to/from drives larger than 8.5 Gigabytes?

A. Yes. Echo Plus software was designed to support drive up to 2 Terabytes in size. It has been tested on drives larger than 250GB in size. Please note that some PC's cannot "see" drives larger than 8.5GB due to BIOS limitations.

Q. Can I copy from a larger drive to a smaller drive?

A. Yes, as long as the data content of each partition fits into the scaled down size of its corresponding partition. Otherwise, an error messageis displayed. With NTFS partitions, certain files cannot be moved, so the ability to scale a partition down is somewhat limited. Typically, an NTFS partition can be scaled down to 55% of its original size.

Q. Can I clone to/from laptop drives?

A. Yes. Logicube sells 2.5" drive adapters, and can provide adapters to many of the special drive connections on the market. Please call for availability. In cases where the drive cannot be removed from the laptop, use the CloneCard (call Logicube sales for details).

Q. Can I clone drives with virus protection software installed?

A. Yes. But remember to decline the "repair" of the Target drive should the protection program complain about an altered Master boot record, etc.

Q. The Echo Plus does not recognize my Master (or Target) drive? What can be done?

A. Make sure that the drive jumpers are set as a single Master. Drive jumper settings can be found at the drive manufacturer web site. Also, make sure all cables (data and power) are connected properly to BOTH drives. Note that WesternDigital drives require all jumpers to be removed, for proper Echo Plus operation.

Q. Why do I have an un-partitioned free space at the end of my Target drive?

A. This typically occurs when the Master drive has FAT16 partitions only, and the Target is much larger. FAT16 partitions cannot scale to more than 2.1GB each. Otherwise, CHS Settings LBA-1, LBA-2, LARGE-1 and LARGE-2 will leave 1 or 2 cylinders unallocated at the end of the drive.

Q. Can the Echo Plus handle dual boot scenarios in conjunction with NTFS.

A. Yes. The Echo Plus will clone a FAT16 followed by either an NTFS, or another FAT16 partition correctly, and adjust all the necessary structures, so that dual booting is possible. It will also handle dual boot scenarios where the different Operating Systems reside in the same partition.

Advanced Topics

SID changing issues

The WinNT operating system, Windows 2000 and WinXP (previously known as NT 5.0) attach a unique number (a security ID or SID) to all files and

directories on the drive to provide security and authentication services. The same SID's are found in the registry in various locations. When such drives are cloned, the security ID's (SID's) get copied without change. If the Target drive participates in the same network as the Master, there will be a security breach which will cause undesirable network behaviors.

It is thus recommended to use one of the many SID changing utilities available in the marketplace. We recommend a freeware SID changer called NewSid. Updated versions can be downloaded at www.sysinternals.com. Logicube is in no way associated with SysInternals and cannot offer any technical support for the SID changer. Other commercial SID changers can be found in major software stores.

Note: NewSID is not compatible with WinXP, we suggest utilizing Microsoft Sysprep to change the SID's in a Windows XP system prior to cloning.

6. Index

For further assistance please contact Logicube's Technical Support at: 818 700 8488 ext. 3, or by email to techsupport@logicube.com. Logicube tech support is available 7am – 5pm PST, Monday through Friday, excluding U.S. legal holidays.