Image For DOS/Windows

User's Guide

TERABYTE UNLIMITED

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Notices

Image for DOS was compiled using an unmodified version of Open Watcom, which can be found at www.openwatcom.org.

Technical Support Policy

Technical support is provided online. The most current versions of software and documentation (including updates to this manual) are available at www.terabyteunlimited.com.

- The Image for DOS home page, with software and documentation update information, and support resources, can be found at www.terabyteunlimited.com/image.html.

- The Image for Windows home page, with software and documentation update information, and support resources, can be found at www.terabyteunlimited.com/imagew.html.

- A support knowledge base for all TeraByte Unlimited products, including Image for DOS and Image for Windows, can be found at www.terabyteunlimited.com/kb.

Registered users can email their questions to support@terabyteunlimited.com, if no suitable resolution is found via the aforementioned support resources. If the issue is not resolved via email, telephone support may be provided.

Unregistered users will be provided technical support and product information through email only.

In all cases, TeraByte Unlimited reserves the right to refuse any communication method that would incur a cost.

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Image for DOS/Windows System Requirements

Image for DOS

By default, Image for DOS relies on the BIOS for processing disk functions. If your computer's BIOS interface is limiting access to the hard drive, then Image for DOS will be affected by this limitation. You can have Image for DOS override the BIOS interface on most systems by using the ATA environment variable, as described in this user guide.

Hardware	• IBM-compatible personal computer (i386 or newer)
	• 16-MB RAM
	• Writable CD or DVD drive (optional)
Software	• MS-DOS or PC-DOS
	• XMS (HIMEM.SYS) (optional)

Image for Windows

If you will be restoring outside of Windows, or are running Windows 95/98/Me, your computer's BIOS must provide access to the hard drive.

	• IBM-compatible personal computer.
Hardware	• 32-MB RAM (minimum)
	• Writable CD or DVD drive (optional)
Operating System	• Windows NT (requires Administrator privileges)
	• Windows 2000 (requires Administrator privileges)
	• Windows 2003 (requires Administrator privileges)
	• Windows XP (requires Administrator privileges)
	• Windows 95
	• Windows 98
	• Windows Millennium

What Is Image for DOS/Windows?

Image for DOS and Image for Windows are backup and restore programs. Image for DOS functions in the DOS operating environment, while Image for Windows is designed to work within Windows.

Both products protect your system by creating a compressed or uncompressed "snapshot" of all *used areas* of your FAT, FAT32, NTFS, Ext2/3, or ReiserFS partition or volume. For other file systems, they save and restore a compressed or uncompressed snapshot of *all sectors* in the partition or volume (i.e. both used and unused areas).

The snapshot backup created by Image for DOS or Image for Windows is referred to as an "image". The image backup can be written to a set of files on a hard drive, network drive, or directly to most USB 2, IEEE 1394, ATAPI CD-R/RW, or writable DVD drives. (Image for DOS can also work with drives that make use of ASPI drivers, if the appropriate driver is provided.)

When you create the image, the file system and files are backed up exactly as they are on your drive at the time of the backup. Image for DOS/Windows do not skip files or assume that some files—such as paging files—do not need to be backed up. The sole exception to this is that if you are using Image for Windows with the free PHYLock add-on, the paging file (PAGEFILE.SYS) and hibernation file (HIBERFIL.SYS), when present, will not be backed up. (This is done to save space in the image, and because there is no need to backup those files.)

Your computer is thereby protected from crashes, data loss, hardware problems, and malicious software (i.e. viruses), by allowing you to restore the snapshot image.

If you need to restore individual files or folders from a backup, you can use the free TBIView add-on, available from www.terabyteunlimited.com or on your installation CD, if your purchase included one.

Image for DOS and Image for Windows create images that are fully compatible with each other, and also with the image files created by the TeraByte Unlimited product, BootIt NG.

Why Two Separate Utilities?

Convenience

Image for Windows can be used from within the Windows environment, either to backup secondary hard drives, or backup the Windows drive itself—without requiring a reboot. Image for DOS can accomplish the same tasks, but it cannot be run within Windows. Instead, Image for DOS runs from a bootable floppy diskette or CD/DVD you create.

Functionality

While you can restore most partitions from within Windows, you cannot restore the Windows partition in the same manner. That is, to restore the Windows drive, you cannot be running Windows at the same time. Generally, the easiest way around this is to use Image for DOS to perform the restore. In this case, you would simply boot using your Image for DOS bootable floppy diskette or CD/DVD, and restore your Windows drive from there. Image for DOS provides a simple, menu-driven interface, so you will have your newly-restored Windows drive up and running in no time.

Automation

Using Image for DOS, you can automate image and restore operations, with the use of batch files and command line parameters. You can even use this method to automate a restore of your Windows partition. (Image for Windows also supports the use of command line parameters, and can be run from batch files. However, you will generally need to use Image for DOS to automate a restore of your Windows partition.)

What You Can Do with Image for DOS/Windows

Local Usage

Use Image for Windows to backup your Windows partition, using the free PHYLock add-on. Store your image backups on a secondary hard drive partition, or on a CD/DVD disc. Then, when you need to restore, boot from a floppy diskette or bootable CD/DVD disc that has Image for DOS installed on it, and use Image for DOS to perform the restore operation. If you use Windows 2000 and cannot readily create a bootable floppy diskette to boot from, simply create the bootable Image for DOS floppy diskette using the free MakeDisk utility.

Across a Network

Create a network-capable DOS diskette, then use Image for DOS to create or restore the image file to or from a mapped network drive.

Use push technology (not included) to automatically start the backup or restore across a network.

With BootIt NG (a separate product offered by TeraByte Unlimited)

Set up a special partition with batch files to restore certain partitions from a network or local drive. At the end of the batch file, have it run the DOS version of BootNow to boot some partition. Enable BootNow support in BootIt NG, and set up boot items to automatically run the correct batch file (via keystrokes). Now you can have a certain partition rebuilt and booted by just selecting the item from the boot menu.

Installing Image for DOS/Windows

Installing Image for DOS

Image for DOS is not "installed" in the usual sense of the word. This is because it is a program that runs under the DOS environment, rather than Windows. Instead, you run Image for DOS by creating a bootable floppy diskette or CD/DVD disc that contains the Image for DOS program. Then, you simply boot with that disc or diskette to run Image for DOS. Instructions for creating a bootable Image for DOS disc and/or diskette are provided below.
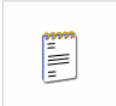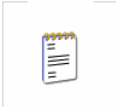
You have several options for preparing Image for DOS for use:

If you are using Windows, and wish to create a bootable Image for DOS disc or diskette, the recommended method is to use the free TeraByte Unlimited utility MakeDisk. If your Image for DOS purchase did not include an installation CD, the MakeDisk utility can be obtained separately. Instructions on using MakeDisk are provided below.

Regardless of the platform you are using, you can create a bootable DOS floppy diskette or CD/DVD disc, and copy the `IMAGE.EXE` file to that media. Instructions for creating a bootable floppy diskette are provided below.

Creating Bootable Image for DOS Media Using MakeDisk (Windows only)

1. Download MakeDisk and Image for DOS.

    *   **NOTE:** If you have purchased Image for DOS/Windows, ***do not*** download the trial version of Image for DOS available from the TeraByte Unlimited web site. The version available for download is for trial use only, and should not be used by registered users of Image for DOS. Instead, use the registered copy of Image for DOS that was provided with your purchase.

2. Extract the contents of `MAKEDISK.ZIP` and `IMAGE.ZIP` to a folder of your choice.

    *   If you are using a version of Windows that has a built-in compressed folders feature (e.g. Windows Me or Windows XP), you can double click the ZIP file and then use the "Extract all files" link shown in the left pane of Explorer to extract the contents. Alternatively, after opening the ZIP file, you can select all the files listed, and copy them to another folder to extract the contents. Please note that whichever foregoing method you use, the contents of the ZIP file *must* be extracted to another folder before proceeding.

`CDBOOT.F35` is the file required to create a bootable CD/DVD. Image for DOS will look in the current directory for `CDBOOT.F35` during the creation of a CD/DVD, and use it to create a bootable disc.
`FWLIC.TXT` is the license agreement for TeraByte Unlimited freeware (in this case, the included MakeDisk utility).
`IMAGE.EXE` is the Image for DOS program.
`IMAGE.PDF` is a copy of this manual.
`LICENSE.TXT` is a copy of the Image for DOS license agreement.
`MAKEDISK.CFG` is the MakeDisk configuration file for Image for DOS.
`MAKEDISK.EXE` is the MakeDisk utility, which allows you to easily create bootable media to run Image for DOS.
`REGISTER.TXT` is an order form for Image for DOS, and is included in the trial version only.

3. Run `MAKEDISK.EXE` from the folder of step 2. The MakeDisk welcome screen appears, as shown below.

4. Click Next on the MakeDisk welcome screen. The Image for DOS license agreement screen appears, as shown below.
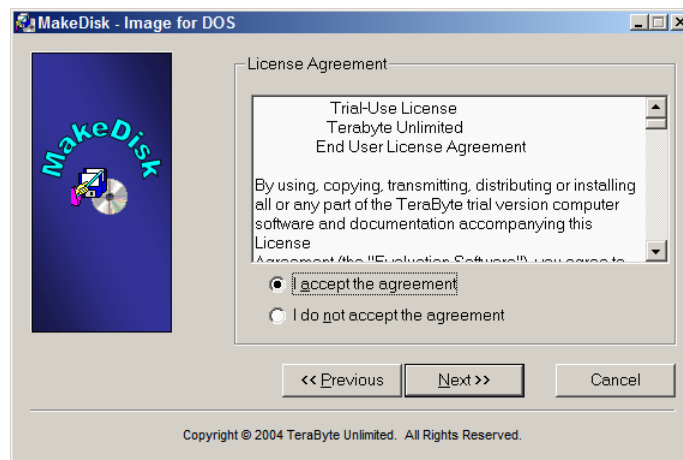
5. Read the Image for DOS license agreement, and if you accept it, select the "I accept the agreement" button and click Next. The "Select Target" screen appears, as shown below.
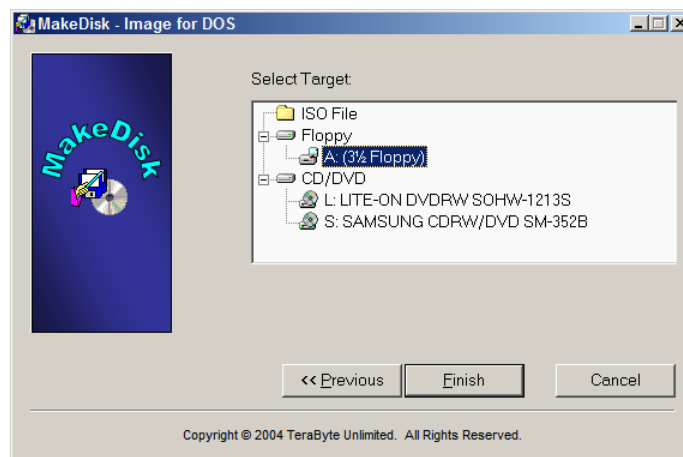
6. Choose the target that MakeDisk should use to create the bootable Image for DOS media.

- If you choose the "ISO File" option, you must supply an ISO file name.

- If you choose the "3 ½ Floppy" option, be sure to insert a floppy diskette before proceeding. **Note:** The entire contents of this floppy diskette will be overwritten.

- If you choose the "CD/DVD" option, be sure to insert a *writable* CD or DVD disc before proceeding. **Note:** The entire contents of this disc will be overwritten.

  o MakeDisk can automatically overwrite CD-RW, and DVD+RW media. However, if you wish to use DVD-RW media, it must be either brand new, or fully blanked before being processed by MakeDisk. To fully blank the DVD-RW media, use your burning software's "full erase" function. (The "quick erase" function will not work for this purpose.)

7. Click Finish, and respond to subsequent prompts as necessary. MakeDisk will then create your bootable media or ISO image. When it is done, the success screen should appear, as shown below.
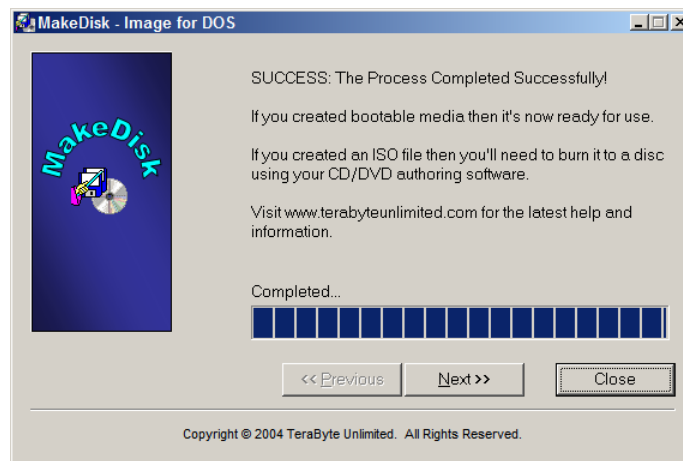
8. Click Close on the MakeDisk "success" screen.

- If you selected the "3 ½ Floppy" or "CD/DVD" option in step 6, you can now use that media to boot and run Image for DOS.

- If you selected the "ISO File" option in step 6, you will have to use other CD/DVD authoring software to create a bootable disc from the ISO file.

Installing Image for DOS Manually (all platforms)

1. Download Image for DOS.

- **NOTE:** If you have purchased Image for DOS/Windows, **do not** download the trial copy of Image for DOS available from the TeraByte Unlimited web site. The version available for download is for trial use only, and should not be used by registered users of Image for DOS. Instead, use the registered copy of Image for DOS that was provided with your purchase.

2. Extract the contents of `IMAGE.ZIP` to a folder of your choice.

- If you are using a version of Windows that has a built-in compressed folders feature (e.g. Windows Me or Windows XP), you can double click the ZIP file and then use the "Extract all files" link shown in the left pane of Explorer to extract the contents. Alternatively, after opening the ZIP file, you can select all the files listed, and copy them to another folder to extract the contents. Please note that whichever foregoing method you use, the contents of the ZIP file *must* be extracted to another folder before proceeding.

3. Create one of the following:

- A bootable DOS floppy diskette, using the instructions provided under **Creating a Startup Diskette**, or using the distribution available from the FreeDOS site.

- A bootable CD/DVD compilation, using the CD/DVD authoring software of your choice.

4. Copy the files `IMAGE.EXE` and `CDBOOT.F35` from the folder of step 2 to the bootable DOS floppy diskette, or the bootable CD/DVD compilation.

- The bootable floppy diskette or CD/DVD disc can now be used to boot from and run Image for DOS.

- If you are creating a bootable CD/DVD, proceed with the creation of the bootable disc at this point.

Installing Image for Windows

1. From the www.terabyteunlimited.com web site, click the **Image for Windows** link under Downloads.

- If you purchased Image for Windows on prepackaged media, you need not download a new copy, but doing so will ensure that you obtain the latest version available.

2. When the **File Download** window displays, click **Save**.

3. Select a location to save the zipped file, `IMAGEW.ZIP`.

4. Once the download completes, locate the `IMAGEW.ZIP` file you saved and double click it to unzip the files. If you don't have an unzip program installed on your computer you'll be asked which program should be used to open the file. In this case, click cancel; you'll need to locate, download and install an unzip utility such as WinZip or WinRAR. Once you have opened the zip file and see the setup program icon you can continue to the next step.

5. Close open programs and then double-click `SETUP.EXE`.

SETUP.EXE
Image for Windows Setup
TeraByte Unlimited

6. The setup wizard will guide you to installation. Simply follow the instructions given to you.

- If you are updating Image for Windows, you will be asked if you want to overwrite `CDBOOT.F35`. Unless you have your own custom copy of `CDBOOT.F35` in place, respond "Yes", and allow the existing copy to be overwritten. (If you had a custom `CDBOOT.F35` file, you would know it.) Allowing the existing `CDBOOT.F35` file to be overwritten will ensure that any bootable CD/DVD discs you create will contain the latest version of Image for DOS.

7. Follow the remaining instructions in the installation program.

What is CDBOOT.F35?

This section only applies to you if you have purchased Image for DOS and/or Image for Windows.

The file `CDBOOT.F35` is used to make any CD or DVD you create with Image for DOS or Image for Windows bootable. The bootable discs created will also contain a copy of Image for DOS, which allows you to perform restore operations as needed.

If you use the trial version of Image for DOS or Image for Windows to create a bootable CD or DVD, you will only be able to restore an image contained on the disc for a limited time. Additionally, if you use the trial version of `CDBOOT.F35` with the full versions of Image for DOS or Image for Windows, you will not be able to restore any image contained on the disc unless you separately run a full version of Image for DOS or Image for Windows.

The registered copies of Image for DOS and Image for Windows have what is referred to as a full-use version of `CDBOOT.F35`. This full-use version allows you to not only boot with any CD or DVD you create with the software, but also to restore from any images contained on the applicable discs, free of any time restriction.

If you are a registered user of Image for Windows, a trial version of `CDBOOT.F35` will automatically be updated to a full-use version when either of the following events takes place:

- You manually enter your Image for Windows registration information.
- You use your registered copy of Image for Windows to create a bootable CD/DVD disc.

If you are a registered user of Image for Windows, you generally do not have to worry about `CDBOOT.F35`. When upgrading to the latest version of Image for Windows, just overwrite `CDBOOT.F35` when prompted (unless you are using your own custom copy of `CDBOOT.F35`), and then use Image for Windows as you normally do. The software will always function in full-use mode.

There is one special note for registered users of Image for Windows who do not normally use Image for Windows to create bootable CD/DVD discs, yet still need a full-use copy of `CDBOOT.F35` for other purposes (e.g. for use with the free add-on utility BINGBURN): Whenever you have updated Image for Windows (assuming you also choose to overwrite `CDBOOT.F35` during setup), you will need to manually "force" the new copy of `CDBOOT.F35` to become a full-use version. To do this, simply use Image for Windows to initiate a backup to CD/DVD, and cancel the operation when Image for Windows prompts you to insert the first disc. At that point, `CDBOOT.F35` will have been converted to a full-use copy. As an alternative, you may use the copy of `CDBOOT.F35` from your latest registered copy of Image for DOS, since it will already be a full-use copy. Either way, depending on how you intend to use `CDBOOT.F35` after that point, you may also need to expand it using the free IMGFLPYD utility.

Please note that Image for Windows looks for `CDBOOT.F35` in the same directory that the Image for Windows program (`IMAGEW.EXE`) is running from. Image for DOS looks for `CDBOOT.F35` in the current directory of the DOS environment.

Creating a Startup Diskette

If you do not have a copy of Windows XP or Windows 95/98/Me, then you can visit the FreeDOS site to download a free DOS clone.

Creating a DOS Boot Diskette from Windows 95/98/Me

1. Insert a floppy diskette to format.
2. Click Start, then Settings, then Control Panel.
3. Double-click Add/Remove Programs.
4. Click on the **Startup Disk** tab.
5. Click the **Create Disk** button.

Creating a DOS Boot Diskette from Windows XP

1. Insert a floppy diskette to format.
2. Click **Start** and select **My Computer**.
3. Right-click the A: drive and select **Format**.
4. Check the box next to Create an MS-DOS startup disk.
5. Click **Start**.

Starting Image for DOS Automatically Upon Boot

To have Image for DOS run automatically when booting from diskette, use a text editor (e.g. Notepad) to create a file with only one line in it, as follows:

```
IMAGE.EXE
```

Save this file as `A:\AUTOEXEC.BAT` (assuming that `A:\` is the path of your floppy drive).

If your diskette already has an `AUTOEXEC.BAT` file on it, add the line above to the end of the current contents of the file (on a new line).

Creating a Network Boot Diskette

If using Windows NT 4 Server, use the Network Client Administrator under Administrative Tools to create a network boot diskette.

If you don't have Windows NT 4 Server, you can download `DSK3-1.EXE` and `DSK3-2.EXE` from the Microsoft ftp site to obtain the Microsoft Network Client for MS-DOS (ftp://ftp.microsoft.com/bussys/clients/MSCLIENT/) to create your own network boot diskettes. You may have to search for a DOS driver for your network card.

You may want to also consider using Bart's Network Boot Disk located at http://www.nu2.nu/bootdisk/network. This disk is easy to set up, and there are quite a few DOS drivers available in one place.

If you experience very slow network speeds, try using the `IOBS=A` environment variable, as explained later in this document.

Running Image for DOS/Windows

Running Image for DOS from Bootable Media

1. Create the bootable floppy diskette or CD/DVD disc as outlined above.

2. Insert the media into the appropriate drive, and reboot.

    - In order to boot from a floppy diskette or CD/DVD, you may have to change the order in which boot devices are examined. This is done by going into your computer's BIOS, usually by pressing the Delete key when prompted.

Running Image for DOS from Windows 95 or 98

1. Download [Image for DOS](#).

    - **NOTE:** If you have purchased Image for DOS/Windows, *do not* download the trial version of Image for DOS available from the TeraByte Unlimited web site. The version available for download is for trial use only, and should not be used by registered users of Image for DOS. Instead, use the registered copy of Image for DOS that was provided with your purchase.

2. Extract the contents of `IMAGE.ZIP` to a folder of your choice.

3. Create a shortcut to `IMAGE.EXE` on your Windows Desktop, by right clicking `IMAGE.EXE`, dragging it to the Desktop, and selecting "Create Shortcuts Here" from the menu that appears when you release the mouse button.

4. Right-click the shortcut and select **Properties**.

5. Select the **Program** tab.

6. Click the **Advanced** button.

7. Check the box next to **MS-DOS Mode**.

8. Click OK until you return to the Windows Desktop. The shortcut can now be used to run Image for DOS.

Running Image for Windows

1. The first time you start Image for Windows, a registration screen will display.
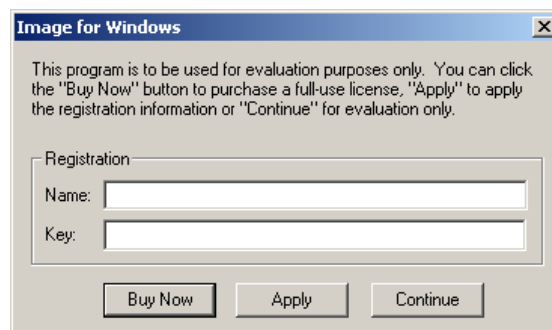
- If you purchased Image for Windows, continue to step 2 below.

- If you are using the trial version of Image for Windows, click Continue, and Image for Windows will operate in 30-day trial mode. Skip steps 2 and 3 below.

2. If you have purchased a boxed version of Image for Windows, you will find your registration information on the CD sleeve that was included. If you purchased a download-only copy of Image for Windows, you will have received an email message with the registration name and key. Either way, enter the registration information exactly as it appears, including any numbers following the name. (The name is everything after `[name]` and before `[key]`. If you received the registration information via email, the name may have wrapped to a second line.)

- There may be special circumstances in which it is not convenient or possible to manually enter the Image for Windows registration information. To account for this type of scenario, Image for Windows can also run in registered-use mode by detecting the presence of a special registration key file, named `IMAGEW.KEY`. To use this method, open a text editor such as Notepad, and enter your Image for Windows registered user name on the first line, with your Image for Windows key on the second line. For example:

```
User Name
XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX
```

Then, save this file as `IMAGEW.KEY`, and ensure that it resides in the same folder as `IMAGEW.EXE` when it is needed.

3. Click **Apply**. The Image for Windows window will display.

Configuring Image for Windows

The first time you start Image for Windows, you should make sure the settings are appropriate for your system.

1. Click the **Settings** button. The Image for Windows settings dialog appears.
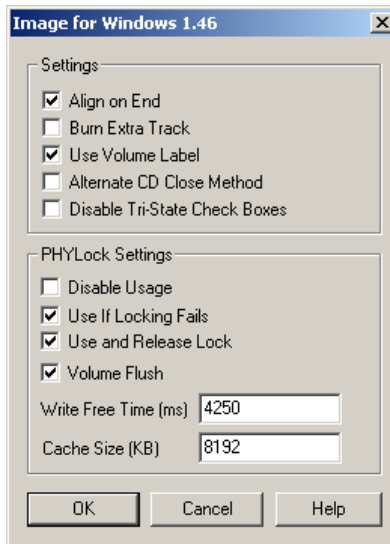
2. Check a box to enable a setting.

   • Each of the settings is explained below.

3. Click **OK** when you are done.

Image for Windows Settings	
Align on End	Ensures that restored partitions are aligned at the end of a cylinder. You should leave this setting checked.
Burn Extra Track	Enable this option to write the image summary data to CD one as track two when directly imaging to CD. When burned this way, you won't have to insert the last CD before beginning the restore. NOTE: This option may not work correctly with all CD devices.
Use Volume Label	If this option is enabled and the drive contains an EMBR then FAT/FAT32/HPFS partition names will be that of the volume label instead of the name in the MPT. If no EMBR exists then this option is assumed.
Alternate CD Close Method	If you experience errors or problems when a CD is closing during an image to CD operation then enable this option to try a different closing technique.
Disable Tri-State Check Boxes	Enabling this option changes the behavior of the partition selection check boxes so that you can select an extended partition (itself) as the source of a backup.

PHYlock Settings	
PHYLock is an optional software component for Windows NT/2000/XP/2003 that enables Image for Windows to maintain a consistent, reliable backup of an unlocked (i.e. in-use) partition or volume. If you purchased a boxed version of Image for Windows, you can find PHYLock on the CD that was included with your purchase. Otherwise, you can obtain PHYLock at www.terabyteunlimited.com, using the Free Software link. It should be noted that the consistency is based on a point in time. Although there is an attempt to pick a "clean" point in time, there is no guarantee that all programs, internal caches, and other processes are in a clean state. This is true of *all* backup software that backs up a partition or volume that is in use. If none of the usage options below are enabled, then PHYLock will be used, if it is installed.	
Disable Usage	Enable this option if you do not want to use PHYLock, even if it is installed.
Use If Locking Fails	Use PHYLock if a normal lock on the backup source partition cannot be obtained.
Use and Release Lock	Attempt a normal lock, then use PHYLock whether or not the lock was obtained. If a normal lock was obtained, it is unlocked after PHYLock is enabled.
Volume Flush	Attempts forcing an additional flush on the volume.
Write Free Time (ms)	This is the amount of time, in milliseconds, that must pass before PHYLock will become enabled. During this time, there can be no updating of the backup source partition contents. You should try to keep the value above 1250. The default value is 4250.
Cache Size (KB):	This is the size of the internal cache, in kilobytes, used by PHYLock to maintain the data consistency. The default is 8192 (8192 KB / 1024 = 8 MB). When backing up NTFS partitions, the value of this setting will need to be weighed against the size of the NTFS log. You should keep the value of this setting above the size of the NTFS log, whether by increasing this value, reducing the size of the NTFS log, or both. You can check the size of the NTFS log file using the command line "`CHKDSK <drive letter>: /L`". (The same command line will show you what the default NTFS log size is for the volume in question.) You can change the size of the NTFS log using "`CHKDSK <drive letter>: /L:<log file size (KB)>`". Setting the NTFS log too small can result in performance degradation or a failure to boot. Do not set the size of the NTFS log to a value lower than 4096 KB.

Backing Up Your System with Image for DOS/Windows

Things to Consider Before Backing Up

If you will be using the PHYLock add-on program with Image for Windows, consider increasing the value of the PHYLock "Cache Size" setting. Refer to the PHYLock settings section on page 17 for more information.

There are few hard-and-fast rules to follow when formulating a backup plan. What follows, therefore, is intended more as a set of examples to spur thought, than as concrete rules to abide by.

- Consider the destination for your backup. For example, if you will be backing up around 30-GB of data, you probably will not want to store the backup on a set of CD-R/RW discs, since the resultant backup will likely require 20 discs or more (based on an expected compression ration of 40-60%). A better option in this case would be:
  - Backup to an alternate hard drive partition (and perhaps use the free add-on utility BINGBURN later to burn the backup to a set of DVD discs).
  - Backup to a removable hard drive.
  - Backup directly to a set of DVD discs.
- Plan your backup with a restore strategy in mind. Some of your options are:
  - Save the backup directly to a set of bootable CD or DVD discs, as explained in this manual. To restore, simply boot with the restore disc, and use Image for DOS to perform the restore.
  - Save the backup to an alternate hard drive partition. To restore, run Image for DOS from a bootable floppy disk or CD/DVD disc. You can also use BootIt NG (a separate product offered by TeraByte Unlimited) to perform the restore.
- Strike your own balance between convenience and resiliency. Here are some simple ideas to consider:
  - Save your backups directly to an alternate hard drive partition, and then use the free utility BINGBURN to burn a secondary copy of the backup to a set of CD/DVD discs. Then, if you need to restore, you have the speed and convenience benefit of the backup stored on the hard drive. If things have really gone wrong and the primary copy of the backup is not available, you can fall back on the copy of the backup that has been saved on the CD/DVD discs.
  - Instead of always saving the backup to just one set of CD/DVD discs, keep two or more separate sets of backup discs, which will give you something to fall back on, if something should ever go wrong with the newest backup set.
  - If you are using multiple sets of backup CD/DVD discs, keep the newest set offsite, to guard against physical damage.

Backing up with Image for Windows

1. If you would like the partition being backed up to be locked then be sure to close any open files on the drive you are going to be backing up. If you are unable to obtain a lock, and you know the partition is not in use, you can continue or consider using Image for DOS or the PHYLock add-on. (Refer to the Image for Windows settings for more details on PHYLock.)

- Some virus-protection software will prevent a drive from being locked, even when real-time protection is turned off. Closing the anti-virus software temporarily may make it possible for the drive to be locked. However, using PHYLock in such a case is the preferred solution.

2. Run Image for Windows.

3. Make sure the **Backup** option is selected, and then click Next.

4. Select the check box(es) next to the hard drive(s) and/or partition(s) you want to back up, and then click Next.
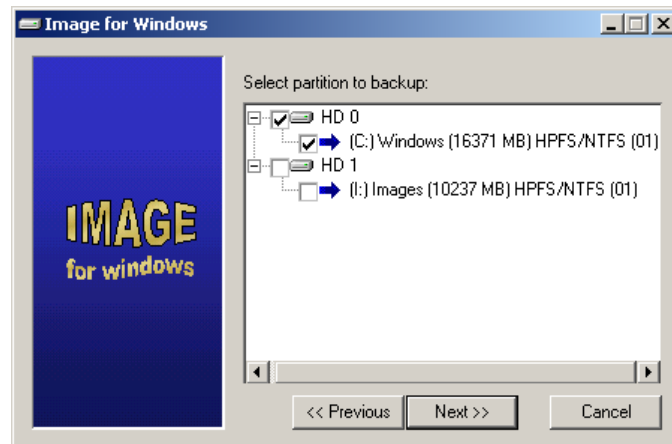
- If you only see a blank window, you do not have Administrator privileges. You should start Image for Windows by right clicking its shortcut, choosing "Run as…" and selecting a user who has Administrator privileges.

- The partition list is displayed below the drive (in the above example, HD 0). The drive letter is shown at the beginning (C:), followed by a description (Windows), size (16371 MB) file system type (NTFS), and the partition ID (01).

5. Select the destination for the backup file(s), before clicking Next to proceed:

- Select File if you would like to save the backup file(s) to a folder on a hard drive which has a drive letter assigned to it by Windows.

    o If you are saving the image to a file, do not save it to the same partition you are backing up, unless you are using PHYLock. If you do, the restored partition will be in an inconsistent state, which can compromise reliability.

- o You can use the Browse button to navigate to the desired location, or manually enter the desired path and file name. You may specify UNC paths.

- o You do not have to supply a file extension—just the path and file name itself. The extension will be added automatically.

- Select a listed CD or DVD drive if you would like to save the backup file(s) to a bootable CD or DVD disc.

  - o Image for Windows can automatically overwrite CD-RW, and DVD+RW media. However, if you wish to use DVD-RW media, it must be either brand new, or fully blanked before being used. To fully blank the DVD-RW media, use your burning software's "full erase" function. (The "quick erase" function will not work for this purpose.)

- Select a HD entry if you would like to save the backup file(s) to a hard drive that is listed there but has not been assigned a drive letter by Windows.
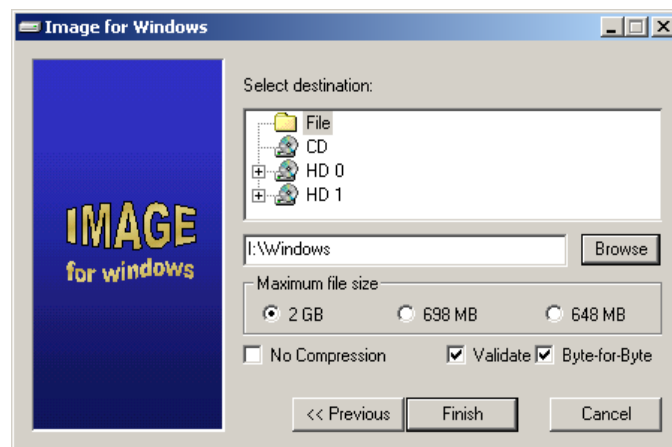
- Regardless of which backup destination you select, note that Image for Windows automatically creates backup files with the `.IMG` extension first, and then creates additional numbered files extensions as necessary. For example, if your backup results in three image files, they will be named `BACKUP.IMG`, `BACKUP.001`, and `BACKUP.002`, in that order of creation. How many image files are created depends on how large the source data is, whether compression is used, and what "Maximum file size" setting you use, as described in the next step.

6. Select the appropriate options for your backup:

Image for Windows Backup Settings	
Maximum file size	This setting tells Image for Windows how large the backup file(s) that are created can be. For example, if the backup ends up being 3.5-GB in size overall, and you select the "2 GB" option, Image for Windows will create one 2.0-GB file, and one 1.5-GB file. The "698 MB" and "648 MB" selections are intended to create backup files that fit on 700-MB and 650-MB CD-R/RW discs, respectively. You can use this option, for example, if you are saving the backup file(s) to a hard drive initially, and will later burn them to a CD using the free TeraByte Unlimited utility BINGBURN.
No Compression	This setting will result in a backup that is uncompressed. Enabling this setting may increase the speed of the backup operation, but may also increase the size of the resulting image file(s). If the source partition contains primarily files that do not compress well (e.g. media files such as MP3, JPG, AVI, etc.), then enabling this option may be beneficial, by speeding up the backup process. By default, Image for Windows uses maximum compression when performing backup operations. However, since the compression ratio depends on a number of factors—such as the number, size, and content of the files on the source partition, the level of file fragmentation, and so on—it is not readily possible to predict what level of compression can be achieved. However, compression ratios of 40 to 60% are typical.
Validate	This setting tells Image for Windows to perform internal consistency checks on the backup file(s), once they are created. Enabling this option increases the overall processing time, but can help ensure that the backup is reliable. The validation process can be cancelled while it is being carried out.
Byte-for-Byte	This setting is only available if the Validate setting is selected. Enabling a byte-for-byte validation forces Image for Windows to carry out an extremely thorough check of the backup file(s) that are created, to ensure 100% accuracy. This option generally doubles the processing time of the overall backup operation, but is advisable to use where maximum reliability is required. The byte-for-byte validation process can be cancelled while it is being carried out.

7. Click **Finish**. The backup operation begins.

- If the validation of a CD or DVD appears to hang, it may be due to problems trying to read the media. Try using a slower speed, or, failing that, different media and/or a CD/DVD drive firmware upgrade.

**Backing Up the System Partition with Image for Windows**

If you attempt to backup the system partition without using PHYLock, you will be warned that the partition cannot be locked. You can ignore this warning and continue, however the only way you can be sure a partition being backed up is in a consistent state is by having it locked, or by using Image for DOS.

If you are using Windows NT/2000/XP/2003, you can use the PHYLock utility to maintain the consistency of the system partition to a "point in time." This means that once PHYLock becomes active during a partition backup, the state of the source drive is effectively frozen, with respect to the contents of the image. That is, no further changes to the source partition will be reflected in the backup, even if those changes occur while Image for Windows is performing the backup.

Backing up with Image for DOS

Note: You may use the Esc key to undo menu selections, and move back to the previous menu.

1. Run Image for DOS, as explained on page 14. The main Image for DOS window appears, as shown below.

```
─────[ IMAGE 1.81 ]─────
Create Image
Restore Image
Validate Image
```
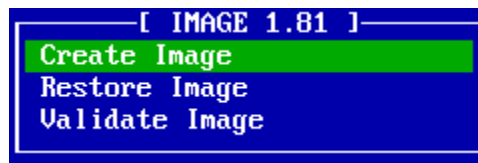
2. Use the arrow keys to select the "Create Image" menu item, and press Enter. The "Save From" window appears, as shown below.

```
─────[ Save From ]─────
BIOS HD
BIOS HD (direct)
USB2 HD
IEEE1394 HD
```
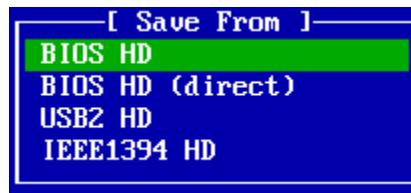
3. Select the access method you wish to use for the source hard drive:

- **BIOS HD --** Locates and accesses drives using the system BIOS. Please note that any problems or limitations inherent to the system BIOS will apply.

- **BIOS HD (direct) --** Attempts to locate the hard drive using the system BIOS, but then attempts to access it directly, bypassing the BIOS. This can sometimes be helpful in cases where performance with the "BIOS HD" option is very poor. In order to get the most out of this option when creating an image, you should select a partition--rather than a file--as the target for saving the image. (This advice applies to step 6 below.)

- **USB2 HD --** Examines the attached USB 2 controller, if any, for available high-speed hard drives.

  o If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.

- **IEEE1394 HD --** Examines the attached IEEE 1394 controller, if any, for available hard drives.

Once you make a selection, press Enter. The second "Save From" window appears.
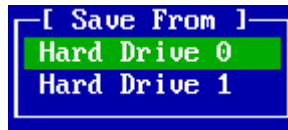
```
┌─[ Save From ]─┐
│ Hard Drive 0  │
│ Hard Drive 1  │
└───────────────┘
```

4. Select the hard drive that contains the partition you wish to backup, and press Enter. The "Hard Drive n" window appears (where "n" is the applicable hard drive number).

```
┌───────────────────[ Hard Drive 0 ]────────────────────┐
│ NEW MBR ENT    Partition   (01)      1024 MB   FAT-32  │
│ NEW MBR ENT    Partition   (02)      1024 MB   FAT-32  │
└────────────────────────────────────────────────────────┘
```

5. Select the partition you wish to backup, and press Enter. The "Save To" window appears.

```
┌────────[ Save To ]────────┐
│ File                      │
│ CD/DVD                    │
│ Partition                 │
└───────────────────────────┘
```
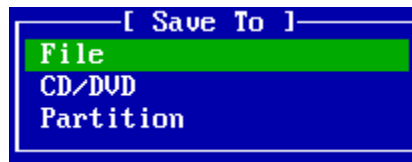
6. Select the destination for the backup file(s), before pressing Enter to proceed:

- Select File if you would like to save the backup file(s) to a folder on a hard drive that has a drive letter assigned to it by DOS. The File option must be used when saving images to a mapped network drive.

    o If you are saving the image to a file, do not save it to the same partition you are backing up. If you do, the restored partition will be in an inconsistent state, which can compromise reliability.

    o You may indirectly access drives using UNC paths, if you first map the drive using the "net use x: \\server\share" command. Then, you would simply specify the path as usual (e.g. "x:\folder\file", where "x:" is the mapped drive).

    o You do not have to supply a file extension—just the path and file name itself. The extension will be added automatically.

- Select the CD/DVD option if you would like to save the backup file(s) to a bootable CD or DVD disc.

    o Image for DOS can automatically overwrite CD-RW, and DVD+RW media. However, if you wish to use DVD-RW media, it must be either brand new, or fully blanked before being used. To fully blank the DVD-RW media, use your burning software's "full erase" function. (The "quick erase" function will not work for this purpose.)

- Select the Partition option if you would like to save the backup file(s) to a partition that has not been assigned a drive letter by DOS. The Partition option is generally required, for example, when using Image for DOS to save images on NTFS partitions.

- Regardless of which backup destination you select, note that Image for DOS automatically creates backup files with the .IMG extension first, and then creates additional numbered files extensions as necessary. For example, if your backup results in three image files, they will be named BACKUP.IMG, BACKUP.001, and BACKUP.002, in that order of creation. How many image files are created depends on how large the source data is, whether compression is used, and what "Maximum File Size" setting you use, as described in a later step.

7. The screen that appears next depends on what "Save To" option you selected above:

- If you selected the File option, enter a path and file name, using the MS-DOS 8.3 naming convention.

- If you selected the CD/DVD option, you will be prompted to select an interface type:

  o **ATAPI:** Select this option if your CD/DVD drive is an ATAPI device, and none of the other selections apply. This is the most common option.

  o **ASPI:** Select this option if your CD/DVD drive will be accessed using an ASPI layer. (You must supply the ASPI driver for this option to work.)

  o **USB2:** Select this option if your CD/DVD drive is attached to a USB 2 controller.

    ▪ If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.

  o **IEEE1394:** Select this option if your CD/DVD drive is attached to an IEEE 1394 controller.

- If you selected the Partition option, you will be prompted with "Save To" options that mirror the "Save From" options that were outlined in step 2 above. The final step in specifying the destination will involve providing a path and file name, using the MS-DOS 8.3 naming convention.

  o You may save the image to a directory other than root; however, in order to do so, you must create the directory structure beforehand, in an environment that supports the file system in use. Since the MS-DOS 8.3 naming convention will be used by Image for DOS, you may want to restrict each folder name to 8 characters or less.

  o If you are saving to a directory other than root, specify the path using the format "\folder1\folder2\filename". Do not supply a drive letter, or a file extension.

Whichever "Save To" option you selected, you will come to the "Maximum File Size" screen.
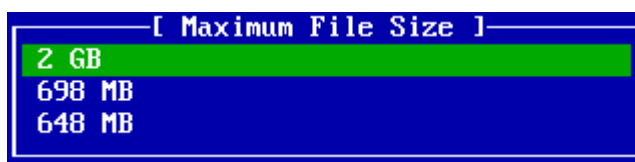
8. Your selection on the "Maximum File Size" screen tells Image for DOS how large the backup file(s) that are created can be. For example, if the backup ends up being 3.5-GB in size overall, and you select the "2 GB" option, Image for Windows will create one 2.0-GB file, and one 1.5-GB file. The "698 MB" and "648 MB" selections are intended to create backup files that fit on 700-MB and 650-MB CD-R/RW discs, respectively. You can use this option, for example, if you are saving the backup file(s) to a hard drive initially, and will later burn them to a CD using the free TeraByte Unlimited utility BINGBURN.

Once you make a selection for maximum file size, you will be asked if you want the backup files validated after creation.

```
Byte-for-Byte comparison (Y/N)?
```

9. If you respond with a "Y" for the first validation prompt, you will be asked if you would like the validation to be performed with a full byte-for-byte comparison of the source and backup data.

- If you perform only a basic validation (i.e. you respond "Y" to the first validation prompt, and "N" to the second), Image for DOS will perform internal consistency checks on the backup file(s), once they are created. Enabling this option increases the overall processing time, but can help ensure that the backup is reliable.

- If you choose to have a full byte-for-byte validation performed (i.e. you respond "Y" to both validation prompts), Image for DOS will verify that every byte in the source data was backed up correctly, ensuring 100% accuracy. This option generally doubles the processing time of the overall backup operation, but is advisable to use where maximum reliability is required.

Once you respond to the image validation prompts, Image for DOS proceeds with the backup operation, and will provide an indication of the backup progress throughout (and also for the validation progress, if any).

```
                    IMAGE 1.81


               Imaging in progress ...




-[ Progress ]----------------------------------------[ 72%]-
```
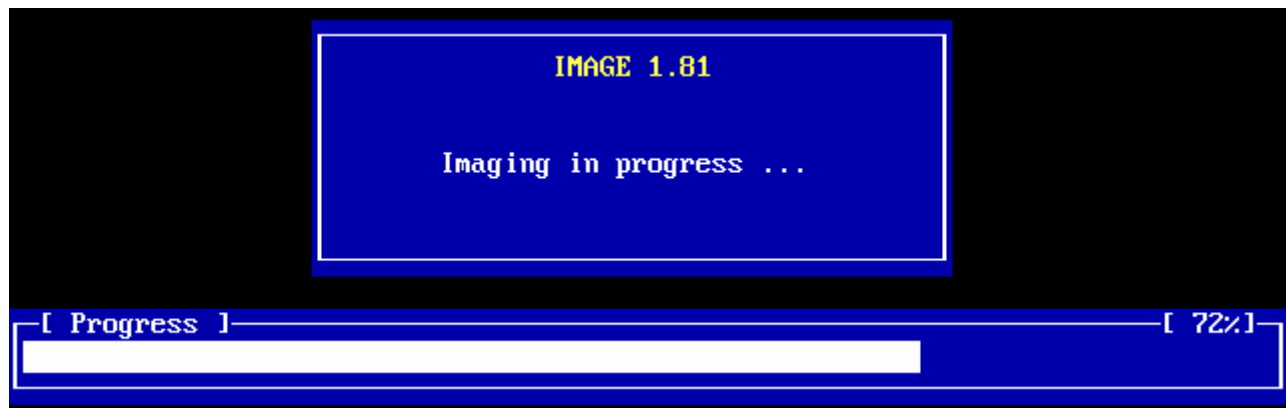
The backup and validation operations may be interrupted at any point by pressing the Esc key. Image for DOS will ask you to confirm that you want to cancel before it interrupts the current operation.

When all operations are done, the completion screen will appear.

```
        The process has completed successfully._
```

Restoring from a Backup with Image for DOS/Windows

Please note the following, when preparing to perform a restore operation:

- When you are restoring an image, you cannot restore over the partition that contains the source image file. This is because the restore will overwrite the file system structures and the image file itself.

- The restore target partition (or area of free space) must be large enough to accommodate the data from the source partition. The *minimal* amount of space required in the target is determined by the amount of space encompassed from the beginning of the source partition, to the last used area of the source partition. For example, if the partition backed up had 2 GB of data, and the last part of that data ended 15 GB from the start of the source partition, the target area would need to be at least 15 GB in size to accommodate the restore. This is true regardless of what the overall size of the source partition was.

- If the restore target partition (or area of free space) is larger than the source partition was, there will be an area of free space left over, unless the restore is performed via command line using the X parameter (as explained later in this manual).

- When you are booting from a restore CD/DVD, make sure the other CD/DVD drives do not also contain a disc, otherwise the wrong CD/DVD drive may be chosen. Additionally, since the hard drive order during the boot process may be different than it is while Windows is running, you may need to use the press the space bar when prompted, to access the interactive menu that will allow you to select the appropriate CD/DVD drive from which to boot.

- If you wish to restore your Windows partition, you cannot boot into that copy of Windows to perform the restore. You must instead run Image for DOS, and restore it from there.

Restoring with Image for Windows

1. Run Image for Windows.

2. Make sure the **Restore** option is selected, and then click Next.

3. Select the source of the backup, before clicking Next to proceed:

- Select File if you are restoring from backup file(s) that have previously been saved to a folder on a hard drive which has a drive letter assigned to it by Windows.

    o You can use the Browse button to navigate to the desired location, or manually enter the desired path and file name. You may specify UNC paths.

- Select a listed CD or DVD drive if you will be restoring from a backup that had been previously saved to a CD or DVD disc.

- Select a HD entry if you wish to restore from a backup that exists on a hard drive that is listed there, but has not been assigned a drive letter by Windows.
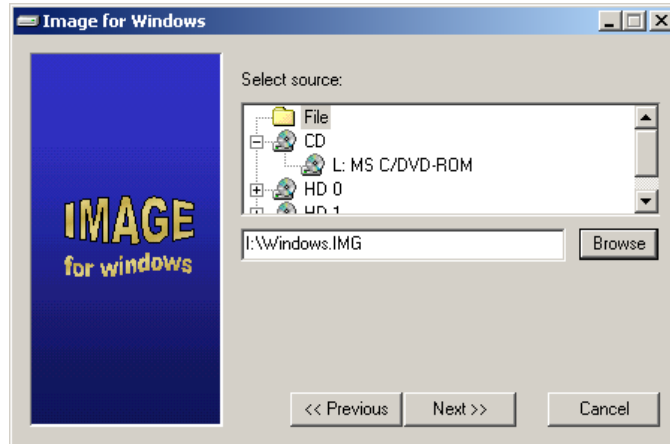
4. Select the destination to restore the partition to, then click Next.

- If the selected destination for restore is a free space entry, the restore operation will begin immediately.

- If the selected destination for restore is an existing partition, you will first be warned that the existing data will be overwritten, and will be asked to confirm before proceeding. Then, you will be asked if you would like to validate the image before the restore operation.

    o If you choose to have the image validated, Image for Windows will perform internal consistency checks on the backup file(s), prior to the restore operation. Enabling this option increases the overall processing time, but can help ensure that the restore will be reliable.
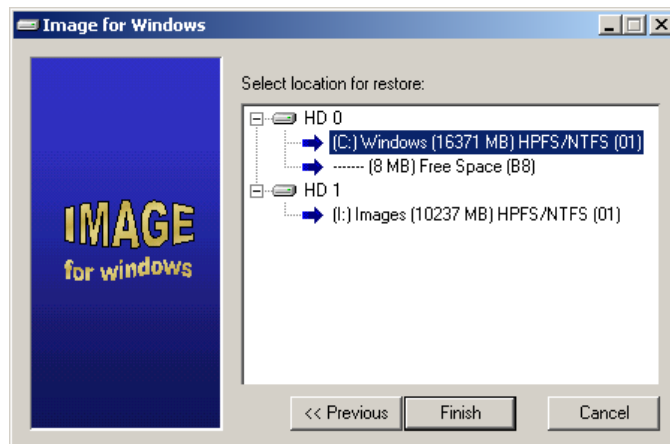
5. Once the restore process completes, reboot the computer if you are prompted to do so.

- If you do not reboot when asked, the operating system will think the partition and file system is as it was before the restore. This could cause data corruption. You can override a command line restore with "`/RN`", but only do this if you are an advanced user, and understand the potential ramifications of not rebooting.

Restoring with Image for DOS

Note: You may use the Esc key to undo menu selections, and move back to the previous menu.

1. Run Image for DOS, as explained on page 14. The main Image for DOS window appears, as shown below.
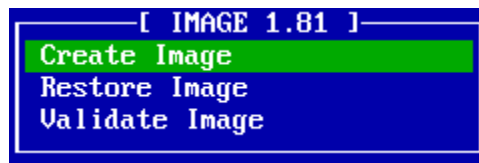
2. Use the arrow keys to select the "Restore Image" menu item, and press Enter. The "Restore From" window appears, as shown below.
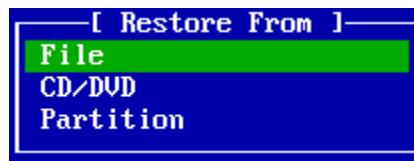
3. Select the source location of the backup file, before pressing Enter to proceed:

- Select File if you would like to restore from a backup stored in a folder on a hard drive which has a drive letter assigned to it by DOS. The File option must be used when restoring images from a mapped network drive.
    - o You may indirectly access drives using UNC paths, if you first map the drive using the "`net use x: \\server\share`" command. Then, you would simply specify the path as usual (e.g. "`x:\folder\file`", where "`x:`" is the mapped drive).
- Select the CD/DVD option if you would like to restore from a backup on CD or DVD disc.

- Select the Partition option if you would like to restore from a backup on a partition that has not been assigned a drive letter by DOS. The Partition option is generally required, for example, when using Image for DOS to restore images stored on NTFS partitions.
    - If you are restoring from a directory other than root, specify the path using the format "`\folder1\folder2\filename`". Do not supply a drive letter, or a file extension.
4. The screen that appears next depends on what "Restore From" option you selected above:
    - If you selected the File option, navigate to and/or select the desired backup file, noting that the MS-DOS 8.3 naming convention is used.
    - If you selected the CD/DVD option, you will be prompted to select an interface type:
        - **ATAPI:** Select this option if your CD/DVD drive is an ATAPI device, and none of the other selections apply. This is the most common option.
   - **ASPI:** Select this option if your CD/DVD drive will be accessed using an ASPI layer. (You must supply the ASPI driver for this option to work.)
        - **USB2:** Select this option if your CD/DVD drive is attached to a USB 2 controller.
            - If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.
        - **IEEE1394:** Select this option if your CD/DVD drive is attached to an IEEE 1394 controller.

    Once you select a CD/DVD interface option, you will have to select the specific drive to restore from. Then you will be prompted to insert the first disc of the backup.
    - If you selected the Partition option, you will be prompted with the following "Restore From" options, which ask you to select the access method you wish to use for the source hard drive:
        - **BIOS HD --** Locates and accesses drives using the system BIOS. Please note that any problems or limitations inherent to the system BIOS will apply.
        - **BIOS HD (direct) --** Attempts to locate the hard drive using the system BIOS, but then attempts to access it directly, bypassing the BIOS. This can sometimes be helpful in cases where performance with the "BIOS HD" option is very poor. In order to get the most out of this option when restoring an image, you should also select the "BIOS HD (direct)" option for the "Restore To" target as well. (This advice applies to step 5 below.)
        - **USB2 HD --** Examines the attached USB 2 controller, if any, for available high-speed hard drives.
            - If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.
        - **IEEE1394 HD --** Examines the attached IEEE 1394 controller, if any, for available hard drives.

    Once you make an access method selection, press Enter. Another "Restore From" window will appear, on which you need to select the source hard drive. Then, select the source partition on the "Hard Drive n" screen (where "n" is the applicable hard drive number). Finally, navigate to and/or select the desired backup file, noting that the MS-DOS 8.3 naming convention is used.

    Whichever initial "Restore From" option you selected, you should now be at the "Restore To" screen.

```
————[ Restore To ]————
BIOS HD
BIOS HD (direct)
USB2 HD
IEEE1394 HD
```
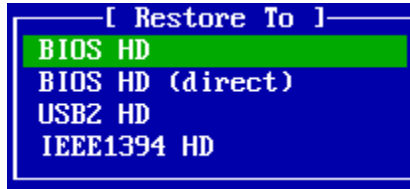
5. On the "Restore To" screen, select the access method you wish to use for the destination hard drive:

- o **BIOS HD --** Locates and accesses drives using the system BIOS. Please note that any problems or limitations inherent to the system BIOS will apply.

- o **BIOS HD (direct) --** Attempts to locate the hard drive using the system BIOS, but then attempts to access it directly, bypassing the BIOS. This can sometimes be helpful in cases where performance with the "BIOS HD" option is very poor. In order to get the most out of this option when restoring an image, you should also select the "BIOS HD (direct)" option for the "Restore From" source as well. (This advice applies to step 4 above.)

- o **USB2 HD --** Examines the attached USB 2 controller, if any, for available high-speed hard drives.

  - ▪ If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.

- o **IEEE1394 HD --** Examines the attached IEEE 1394 controller, if any, for available hard drives.

Once you make a selection, press Enter. The second "Restore To" screen appears.

```
—[ Restore To ]—
Hard Drive 0
Hard Drive 1
```
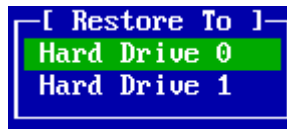
6. Select the hard drive that contains the partition or free space you wish to restore to, and press Enter. The "Hard Drive n" window appears (where "n" is the applicable hard drive number).

```
————————————[ Hard Drive 0 ]————————————
NEW MBR ENT     Partition   (01)     1024 MB   FAT-32
NEW MBR ENT     Partition   (02)     1024 MB   FAT-32
```
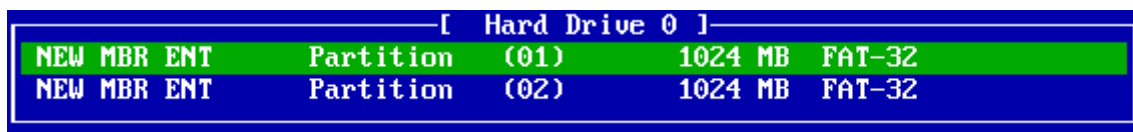
7. Select the partition or free space entry you wish to restore to, and press Enter.

- If the selected destination for restore is a free space entry, the restore operation will begin immediately.

- If the selected destination for restore is an existing partition, you will first be warned that the existing data will be overwritten, and will be asked to confirm before proceeding. Then, you will be asked if you would like to validate the image before the restore operation.

  - o If you choose to have the image validated, Image for DOS will perform internal consistency checks on the backup file(s), prior to the restore operation. Enabling this option increases the overall processing time, but can help ensure that the restore will be reliable.

```
                        IMAGE 1.81


                     Restoring image ...




-[ Progress ]─────────────────────────────────[ 68%]-
```

The restore and validation operations may be interrupted at any point by pressing the Esc key. Image for DOS will ask you to confirm that you want to cancel before it interrupts the current operation.

When all operations are done, the completion screen will appear.

```
        The process has completed successfully._
```

8. Once the restore process completes, reboot the computer if you are prompted to do so.

- If you do not reboot when asked, the operating system will think the partition and file system is as it was before the restore. This could cause data corruption. You can override a command line restore with "/RN", but only do this if you are an advanced user, and understand the potential ramifications of not rebooting.

Validating Backups with Image for DOS/Windows

Image for DOS and Image for Windows each provide you with the option to validate backups at the time of their creation, and also before any backup is restored. However, you can also perform this validation at any time afterward, using the instructions provided below.

Validating a backup causes internal consistency checks to be performed on the backup file(s). This can help ensure that the backup will be reliable, should you ever need to restore from it.

Note: A byte-for-byte validation can only be performed as part of a backup operation. That is, the Validate operation described here can only perform a standard validation, not a byte-for-byte validation.

Validating a Backup with Image for Windows

1. Run Image for Windows.
2. Make sure the **Validate** option is selected, and then click Next.

6. Select the location of the backup to be validated, before clicking Next to proceed:

- Select File if you are validating a backup that has previously been saved to a folder on a hard drive which has a drive letter assigned to it by Windows.

   o You can use the Browse button to navigate to the desired location, or manually enter the desired path and file name. You may specify UNC paths.

- Select a listed CD or DVD drive if you will be validating a backup that had been previously saved to a CD or DVD disc.

- Select a HD entry if you wish to validate a backup that resides on a hard drive that is listed there, but has not been assigned a drive letter by Windows.
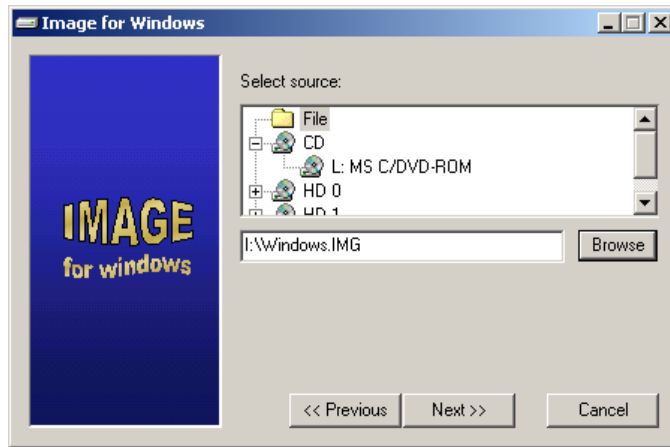
7. Click Finish to begin the validation process. The validation process can be interrupted at any time by clicking the Cancel button.

Validating a Backup with Image for DOS

Note: You may use the Esc key to undo menu selections, and move back to the previous menu.

1. Run Image for DOS, as explained on page 14. The main Image for DOS window appears, as shown below.
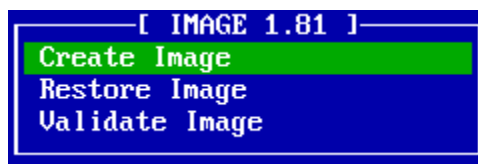
2. Use the arrow keys to select the "Validate Image" menu item, and press Enter. The "Validate" window appears, as shown below.
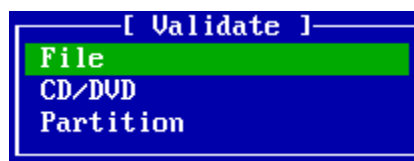
3. Select the location of the backup file you wish to validate, before pressing Enter to proceed:

- Select File if you would like to validate a backup stored in a folder on a hard drive which has a drive letter assigned to it by DOS.
    - You may indirectly access drives using UNC paths, if you first map the drive using the "`net use x: \\server\share`" command.
- Select the CD/DVD option if you would like to validate a backup on CD or DVD disc.
- Select the Partition option if you would like to validate a backup on a partition that has not been assigned a drive letter by DOS. The Partition option is generally required, for example, when using Image for DOS to validate images stored on NTFS partitions.

4. The screen that appears next depends on what "Validate" option you selected above:

- If you selected the File option, navigate to and/or select the desired backup file, noting that the MS-DOS 8.3 naming convention is used.
- If you selected the CD/DVD option, you will be prompted to select an interface type:
    - **ATAPI:** Select this option if your CD/DVD drive is an ATAPI device, and none of the other selections apply. This is the most common option.
    - **ASPI:** Select this option if your CD/DVD drive will be accessed using an ASPI layer. (You must supply the ASPI driver for this option to work.)
    - **USB2:** Select this option if your CD/DVD drive is attached to a USB 2 controller.
        - If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.
    - **IEEE1394:** Select this option if your CD/DVD drive is attached to an IEEE 1394 controller.

    Once you select a CD/DVD interface option, you will have to select the specific drive where the backup is located. Then you will be prompted to insert the first disc of the backup.
- If you selected the Partition option, you will be prompted with the following "Validate" options, which ask you to select the access method you wish to use for the hard drive that contains the backup to be validated:
    - **BIOS HD --** Locates and accesses drives using the system BIOS. Please note that any problems or limitations inherent to the system BIOS will apply.
    - **BIOS HD (direct) --** Attempts to locate the hard drive using the system BIOS, but then attempts to access it directly, bypassing the BIOS. This can sometimes be helpful in cases where performance with the "BIOS HD" option is very poor.
    - **USB2 HD --** Examines the attached USB 2 controller, if any, for available high-speed hard drives.
        - If your USB device does not appear at first, please try pressing the Esc key, waiting a few seconds, and selecting the "USB2 HD" option again.
    - **IEEE1394 HD --** Examines the attached IEEE 1394 controller, if any, for available hard drives.

    Once you make an access method selection, press Enter. Another "Validate" window will appear, on which you need to select the hard drive containing the backup to be validated. Then, select the appropriate partition on the "Hard Drive n" screen (where "n" is the applicable hard drive number). Finally, navigate to and/or select the desired backup file, noting that the MS-DOS 8.3 naming convention is used.

Whichever location you select above, once you point Image for DOS to the backup file to be validated, the validation process begins automatically. The process may be cancelled at any time by pressing the Esc key. (Image for DOS will confirm before canceling.)

Deploying Your Image

Deploying an image means to restore it to a number of computers in an organization. Therefore, the information in this section does not apply to most home users.

Image does not change the SID of Windows NT/2000/XP/2003 systems. If you are using Image for deployment purposes and want to change the SID for WinNT/2K you should use the MS sysprep utility or you can download a free utility named NewSID,

You may want to set up the base machine so that the last partition ends at one track less then the actual end of the hard drive (around 8 MB less) to leave room for different brands or models of the same size hard drive.

You may also want to investigate the free ImageAll utility available from the TeraByte Unlimited web site.

See the following for more information on how to prepare for deployment:

Windows XP:
How to Prepare Images for Disk Duplication with Sysprep
http://www.microsoft.com/WINDOWSXP/pro/using/itpro/deploying/duplication.asp
Windows XP Professional How-to Articles for IT Pros
http://www.microsoft.com/windowsxp/pro/using/itpro/default.asp

Windows 2000:
Download for the Microsoft Windows 2000 Sysprep Tool
http://www.microsoft.com/windows2000/downloads/tools/default.asp
Deploying MS Windows 2000 Professional and MS Office 2000 Using Sysprep
http://www.microsoft.com/technet/prodtechnol/windows2000pro/deploy/depopt/sysprep.mspx
Using Sysprep to Duplicate Disks
http://www.microsoft.com/WINDOWS2000/techinfo/reskit/en/Deploy/dgcb_ins_izyl.htm

Windows NT:
Windows NT Workstation Deployment
http://www.microsoft.com/ntworkstation/technicalresources/deployment/default.asp

Running Image for DOS/Windows from the Command Line

You can run both Image for DOS (`IMAGE.EXE`) and Image for Windows (`IMAGEW.EXE`) from the command line. Be sure to separate the command line options with spaces, and enter in the order shown in the following examples. Use the `/?` command line parameter for additional command line options not explained in the following section.

Environment Variables

Image for Windows Environment Variables

Image for Windows makes use of environment variables with the command line interface only. That is, if you do not also use command line parameters when invoking `IMAGEW.EXE`, the environment variables will be ignored.

The following environment variables are accepted by Image for Windows (`IMAGEW.EXE`):

IFW	Image for Windows uses this variable to supply most of its options. The format of the IFW environment variable is: `IFW=option1;option2:value;...` The options are given below:
	ATA – When used while creating a bootable CD/DVD disc, this option causes the disc to be created so that Image for DOS will—during a restore operation carried out after booting to that disc—attempt to directly access the IDE hard drive directly instead of using the system BIOS. This option does not affect the backup operation.
	IBXT – When using the Burn Extra Track option, you will not be prompted for the last CD during a restore. This option may not work with all CD or DVD drives.
	CDCMZ – If you experience errors or problems when a CD is being closed, then you may need to use this option.
	CDRS:*speed* – Used to set the CD read speed. For example: `CDRS:8` sets the read speed to 8X. **These speeds are CD-based; multiply by 8 to approximate DVD speeds (e.g. To read a DVD disc at 2X, use `CDRS:16`).**
	CDWS:*speed* – Used to set the CD write speed. For example: `CDWS:8` sets the write speed to 8X. **These speeds are CD-based; multiply by 8 to approximate DVD speeds (e.g. To burn a DVD disc at 1X, use `CDWS:8`). NOTE:** If you are having problems burning a reliable CD, you may need to slow the write speed down by using this option.
	IAR:*value* – Image Auto Response value. Set this optional value to Y or N to auto respond to 'Y'es or 'N'o prompts and error messages. You can use errorlevel in a batch file to determine if the operation was successful or not.
	To respond to the Unable to obtain a lock Abort/Ignore/Retry message, set the second character of the IAR option to either R, A, or I. For example, `IAR:YI`.
	NOTE: If you use the "R" setting, the program will appear to be imaging without making progress while it keeps trying to obtain the lock. You will need to click cancel to stop it. If you would like to only respond to the lock message then set the first character of IAR to something other than Y or N, for example "`IAR:x`". You can use errorlevel in a batch file to determine if the operation was successful or failed.

The `SET` command is used to set Image for Windows environment variables. An example of batch script Image for Windows invocation from Windows NT/2000/XP/2003 is as follows:

```
setlocal
set IFW=ATA;CDWS:2
start "" /wait "<path>\imagew.exe" /c00x11 /cd0
endlocal
```

For Windows 95/98/Me, you would use this batch file content instead, which is functionally equivalent to the example above:

```
set IFW=ATA;CDWS:2
start /wait "<path>\imagew.exe" /c00x11 /cd0
set IFW=
```

In each case, this would backup partition ID 0x11 on hard drive 0 (`/c00x11`), and save the image to the CD/DVD drive number 0 (`/cd0`). It would also enable the `ATA` option for any future restores carried out after booting with the CD/DVD created, and set the CD/DVD write speed (`CDWS`) to 2X (`CDWS:2`). (Command line options are explained below.)

Image for DOS Environment Variables

The following environment variables are accepted by Image for DOS (`IMAGE.EXE`):

IFD	Image for DOS uses this variable to supply most of its options. The format of the IFD environment variable is: `IFD=option1;option2:value;...` The options are given below:
	ATA -- When used while creating a bootable CD/DVD disc, this option causes the disc to be created so that Image for DOS will—during a restore operation carried out after booting to that disc—attempt to directly access the IDE hard drive directly instead of using the system BIOS. This option also forces Image for DOS to directly access the hard drive during the backup operation itself.
	IBXT – When using the Burn Extra Track option, you will not be prompted for the last CD during a restore. This option may not work with all CD or DVD drives.
	CDCMZ – If you experience errors or problems when a CD is being closed, then you may need to use this option.
	CDRS:*speed* – Used to set the CD read speed. For example: `CDRS:8` sets the read speed to 8X. **These speeds are CD-based; multiply by 8 to approximate DVD speeds (e.g. To read a DVD disc at 2X, use `CDRS:16`).**
	CDWS:*speed* – Used to set the CD write speed. For example: `CDWS:8` sets the write speed to 8X. **These speeds are CD-based; multiply by 8 to approximate DVD speeds (e.g. To burn a DVD disc at 1X, use `CDWS:8`). NOTE:** If you are having problems burning a reliable CD, you may need to slow the write speed down by using this option. It is used by the command line interface only.
	IAR:*value* – Image Auto Response value. Set this optional value to Y or N to auto respond to 'Y'es or 'N'o prompts and error messages. You can use errorlevel in a batch file to determine if the operation was successful or not. For example: `IAR:Y`
	IGNVLAB – Ignores the use of volume labels. This can be useful when using ImageAll with an EMBR where you want the MPT entry names to stay the same.

	IOBS:*value* – If your network performance is slow due to bugs or compatibility issues with the DOS NIC drivers then set this option to determine if it will solve your performance issues. Set the value to A to automatically determine the best value or to 1, 2 or 3. For example: `IOBS:A` **UHCI** – Enables supports for most built-in USB 1.1 controllers (typically found on older computers).
IMSG	The contents of this variable are displayed below the progress bar during the image or restore process. The message must be less than 80 characters.

The `SET` command is used to set Image for DOS environment variables. An example of batch script Image for DOS invocation is as follows:

```
set IFD=IBXT;CDWS:4
image.exe /c20x11 /cd1
set IFD=
```

This would backup partition ID 0x11 on hard drive 2 (`/c20x11`), and save the image to the CD/DVD drive number 1 (`/cd1`). It would also enable the "burn extra track" option (`IBXT`), and set the CD/DVD write speed (`CDWS`) to 4X (`CDWS:4`). (Command line options are explained below.)

Display a List of Variables

At the command line, enter the `set` command with no parameters:

```
set
```

Remove a Variable

At the command line, enter the `set` command with no value. The following example removes "`varname`" from the environment:

```
set varname=
```

Image for DOS/Windows Command Line Options

Image for Windows Command Line Options

All available command line options can be viewed by running `IMAGEW.EXE` followed by the "/?" parameter, as follows:

`imagew.exe /?`

If you will be using a batch file, you should start the process using the `start` command:

`start /wait "<path>\imagew.exe" [options]` (Windows 9x/Me)

`start "" /wait "<path>\imagew.exe" [options]` (Windows NT/2000/XP/2003)

To run the program as a different user under Windows 2000/XP/2003, use the `runas` command:

`runas /user:Administrator "<path>\imagew.exe" [options]`

You can also use the Task Scheduler, the Windows service that schedules tasks. With Windows NT/2000/XP/2003, you may want to use something like SRVANY (included with the NT resource kit) and run it as a service under an appropriate profile.

Image for Windows command line options are detailed below.

Image for Windows Command Line Options: Backup		
	Option	**Explanation**
		Required Parameters
Create Image	/C[hd][id]	Create image source
		/C[hd][id]	[hd] is source hard drive number (0 through 9) [id] is source partition ID
	/CDn d:\<path>\<file> [hd][id]:\<path>\<file>	Save to CD/DVD drive "n"
		Save to drive letter "d"
		Save to destination hard drive number [hd] and partition ID [id]
		Optional Parameters
	/U	No compression when creating image
	V	Validate the image after creating
	VB	Validate the image byte-for byte after creating
	;[max file size]	Added to end of <path>\<file> to specify max backup file size:
		0	Maximum backup file size 2.0 GB (the default if omitted)
		1	Maximum backup file size 698 MB
		2	Maximum backup file size 648 MB
		Usage Examples

```
imagew.exe /C20x4VB /U E:\BACKUPS\WINDOWS;1
```
Backs up hard drive number 2, partition ID 0x4 (/C**20x4**VB)
Saves to drive letter E:, under path and file name "\BACKUPS\WINDOWS"
Performs byte-for-byte validation (/C20x4**VB**)
Uses no compression (/U)
Maximum file size will be 698 MB (;1)

```
imagew.exe /C10x5V /CD1
```
Backs up hard drive number 1, partition ID 0x5 (/C**10x5**V)
Saves to CD/DVD drive number 1 (/CD**1**)
Performs standard validation (/C10x5**V**)
Uses compression (the default)
Maximum file size will be determined by destination CD/DVD media

```
imagew.exe /C00x1 10x1:\DATA01\BACKUP
```
Backs up hard drive number 0, partition ID 0x1 (/C**00x1**)
Saves to hard drive number 1, partition ID 0x1, and path/file name "\DATA01\BACKUP" (10x1)
Performs no validation (the default)
Uses compression (the default)
Maximum file size will be 2.0 GB (the default)

Additional Notes on Image for Windows Command Line Backups

- For most users, the partition ID will be a number from 1 through 4.

- Volumes will be a number formatted as 0xPVV where P is the extended partition and VV is the volume number in hexadecimal from 01 to FF.

- If you are not sure what the partition or volume ID is, run Image for Windows without any parameters, choose the Backup option, and click Next. The screen that lists the partitions and volumes also will display the ID in parentheses as a hexadecimal number. You should prefix that number with a 0x on the command line, as shown in the examples above.

Creating a Bootable CD/DVD Restore Disc

As long as the file `CDBOOT.F35` is in the same directory as `IMAGEW.EXE`, a bootable CD/DVD will be created when burning directly to a CD/DVD drive. However, the `CDBOOT.F35` file will only be able to restore from an ATAPI CD drive on one of the IDE controllers. If you would like to restore from another device, you will need to create your own diskette image with the appropriate ASPI drivers and `AUTOEXEC.BAT` file to execute the image restore.

- This only applies when booting the CD/DVD created with `CDBOOT.F35`. You will be able to restore from other CD/DVD drives under Windows.

Image for Windows Command Line Options: Restore	
Option	**Explanation**
Required Parameters	
/R[hd]	Restore image destination
	/R[hd] [hd] is destination hard drive number (0 through 9)
/CDn[file]	Restore from CD/DVD drive "n" (specifying [file] is optional)
d:\<path>\<file>	Restore from drive letter "d"
[hd][id]:\<path>\<file>	Restore from source hard drive number [hd] and partition ID [id]
Optional Parameters	
/O	Overwrite existing data without warning (advanced users only) Cannot be used with /C or /CR options
/C	Clear MBR and EMBR before restore (advanced users only) Cannot be used with /O option
/CR	Clear MBR and EMBR, and restore NT signature (advanced users only) Cannot be used with /O option
N	Suppress prompt to reboot after restore (advanced users only)
V	Validate the image before restoring
A	Set the restored partition active
X[mb]	Expand the restored partition to fill leftover free space, if any, minus the number of megabytes specified by [mb]
Z	Restore a Linux partition without changing the hard drive reference.
M	Restore to the first block of free space on the destination drive that is large enough to accommodate the restored partition
Usage Examples	

The left side of the table reads vertically: **Restore Image**

Usage Examples

```
imagew.exe /R0VAX "D:\System Backups\Monthly01"
```
Restores to destination hard drive number 0 (/R**0**VAX)
Restores from backup source "D:\System Backups\Monthly01" (quotes required for long file name)
Provides overwrite confirmation (the default)
Will not suppress reboot prompt (the default)
Will validate the backup before performing the restore (/R0**V**AX)
Will not clear the MBR, EMBR, or NT signature (the default)
Will set the restored partition active (/R0V**A**X)
Will expand the restored partition to fill leftover free space, if any (/R0VA**X**)

```
imagew.exe /R1 /O /CD2backup
```
Restores to destination hard drive number 1 (/R**1**VAX)
Restores from CD/DVD drive number 2 (/CD**2**backup)
Restores the file named "backup.img" (/CD2**backup**) on CD/DVD drive number 2
Does not provide overwrite confirmation (/O)
Will not suppress reboot prompt (the default)
Will not validate the backup before performing the restore (the default)
Will not clear the MBR, EMBR, or NT signature (the default)

Will not set the restored partition active (the default)	
Will not expand the restored partition to fill leftover free space, even if present (the default)	

`imagew.exe /R1NV 10x1:\BACKUPS\MARCH`
Restores to destination hard drive number 1 (/R**1**NV)
Restores from hard drive number 1, partition ID 0x1, and path/file name "BACKUPS\MARCH" (10x1)
Provides overwrite confirmation (the default)
Will suppress reboot prompt, even if reboot is required (/R1**N**V)
Will validate the backup before performing the restore (/R1N**V**)
Will not clear the MBR, EMBR, or NT signature (the default)
Will not set the restored partition active (the default)
Will not expand the restored partition to fill leftover free space, even if present (the default)

Additional Notes on Image for Windows Command Line Restores

- The restored partition will go to the same hard drive number (unless overridden) and physical location on the drive as it was backed up from.

- If the source partition was a volume and there is now no extended partition at the original location, Image for Windows will attempt to create the original extended partition. If Image for Windows cannot create the extended partition, it will be restored as a primary partition.

- If the source partition was originally a primary partition, and an extended partition now encompasses that location, it will be restored as a volume.

- If an existing partition or volume occupies the same starting location as the partition to be restored, a warning message will be issued before overwriting that partition or volume. (Unless this warning message is suppressed, as described in the table above.)

Image for Windows Command Line Options: Validate		
Validate Image	**Option**	**Explanation**
	Required Parameters	
	/V	Validate image
	/CDn	Validate backup on CD/DVD drive "n"
	d:<path>\<file>	Validate backup on drive letter "d"
	[hd][id]:\<path>\<file>	Validate backup on source hard drive number [hd] and partition ID [id]
	Usage Examples	
`imagew.exe /V "D:\System Backups\Monthly01"`		
Validates the backup file "D:\System Backups\Monthly01" (quotes required for long file name)		
`imagew.exe /V /CD1`		
Validates the backup mounted on CD/DVD drive number 1 (/CD**1**)		
`imagew.exe /V 20x3:\BKUP`		
Validates the backup file on hard drive number 2, partition ID 0x3, and path/file name "BKUP" (20x3)		

Image for DOS Command Line Options

All available command line options can be viewed by running `IMAGE.EXE` followed by the "/?"
parameter, as follows:

```
image.exe /?
```

Image for DOS command line options are detailed below.

<table>
<tr><th colspan="4">Image for DOS Command Line Options: Backup</th></tr>
<tr><th></th><th>Option</th><th colspan="2">Explanation</th></tr>
<tr><th rowspan="19">Create Image</th><td colspan="3" align="center">Required Parameters</td></tr>
<tr><td rowspan="5">/C[hd][id]</td><td colspan="2">Create image source</td></tr>
<tr><td>/C[hd][id]</td><td>[hd] is source hard drive number (0 through 9)
[id] is source partition ID</td></tr>
<tr><td>/CF[hd][id]</td><td>Prefix [hd][id] with F if source is IEEE 1394 device</td></tr>
<tr><td>/CU[hd][id]</td><td>Prefix [hd][id] with U if source is USB 2 device</td></tr>
<tr><td>/CA[hd][id]</td><td>Prefix [hd][id] with A for direct hard drive access (equivalent to ATA environment variable)</td></tr>
<tr><td rowspan="4">/CDn

d:\<path>\<file>
[hd][id]:\<path>\<file></td><td>/CDn</td><td>Save to CD/DVD drive number "n"</td></tr>
<tr><td>/CDSn</td><td>Prefix n with S if destination CD/DVD uses ASPI driver</td></tr>
<tr><td colspan="2">Save to drive letter "d"</td></tr>
<tr><td colspan="2">Save to destination hard drive number [hd] and partition ID [id]</td></tr>
<tr><td colspan="3" align="center">Optional Parameters</td></tr>
<tr><td>/U</td><td colspan="2">No compression when creating image</td></tr>
<tr><td>V</td><td colspan="2">Validate the image after creating</td></tr>
<tr><td>VB</td><td colspan="2">Validate the image byte-for byte after creating</td></tr>
<tr><td rowspan="4">;[max file size]</td><td colspan="2">Added to end of <path>\<file> to specify max backup file size:</td></tr>
<tr><td>0</td><td>Maximum backup file size 2.0 GB (the default if omitted)</td></tr>
<tr><td>1</td><td>Maximum backup file size 698 MB</td></tr>
<tr><td>2</td><td>Maximum backup file size 648 MB</td></tr>
<tr><td colspan="3" align="center">Usage Examples</td></tr>
<tr><td colspan="3">`image.exe /C20x4VB /U E:\BACKUPS\WINDOWS;1`
Backs up hard drive number 2, partition ID 0x4 (/C**20x4**VB)
Saves to drive letter E:, under path and file name "\BACKUPS\WINDOWS"
Performs byte-for-byte validation (/C20x4**VB**)
Uses no compression (/U)
Maximum file size will be 698 MB (;1)</td></tr>
<tr><td colspan="3">`image.exe /C10x5V /CD1`
Backs up hard drive number 1, partition ID 0x5 (/C**10x5**V)
Saves to CD/DVD drive number 1 (/CD**1**)
Performs standard validation (/C10x5**V**)
Uses maximum compression (the default)
Maximum file size will be determined by destination CD/DVD media</td></tr>
<tr><td colspan="3">`image.exe /C00x1 10x1:\DATA01\BACKUP`
Backs up hard drive number 0, partition ID 0x1 (/C**00x1**)
Saves to hard drive number 1, partition ID 0x1, and path/file name "\DATA01\BACKUP" (10x1)
Performs no validation (the default)
Uses maximum compression (the default)
Maximum file size will be 2.0 GB (the default)</td></tr>
</table>

Additional Notes on Image for DOS Command Line Backups

- For most users, the partition ID will be a number from 1 through 4.

- Volumes will be a number formatted as 0xPVV where P is the extended partition and VV is the volume number in hexadecimal from 01 to FF.

- If you are not sure what the partition or volume ID is, run Image for DOS without any parameters, choose the Backup option, and click Next. The screen that lists the partitions and volumes also will display the ID in parentheses as a hexadecimal number. You should prefix that number with a 0x on the command line, as shown in the examples above.

Creating a Bootable CD/DVD Restore Disc

As long as the file CDBOOT.F35 is in the current directory, a bootable CD/DVD will be created when burning directly to a CD/DVD drive. However, the CDBOOT.F35 file will only be able to restore from an ATAPI CD drive on one of the IDE controllers. If you would like to restore from another device, you will need to create your own diskette image with the appropriate ASPI drivers and AUTOEXEC.BAT file to execute the image restore.

	Image for DOS Command Line Options: Restore		
	Option	**Explanation**	
Restore Image		**Required Parameters**	
	/R[hd]	Restore image destination	
		/R[hd]	[hd] is hard drive number (0 through 9)
		/RF[hd]	Prefix [hd] with F if target is IEEE 1394 device
		/RU[hd]	Prefix [hd] with U if target is USB 2 device
		/RA[hd]	Prefix [hd][id] with A for direct hard drive access (equivalent to ATA environment variable)
	/CDn[file]	/CDn[file]	Restore from CD/DVD drive "n" (specifying [file] is optional)
		/CDSn[file]	Prefix n with S if destination CD/DVD uses ASPI driver
		/CDFn[file]	Prefix n with F if source is IEEE 1394 device
		/CDUn[file]	Prefix n with U if source is USB 2 device
	d:<path>\<file>	Restore from drive letter "d"	
	[hd][id]:\<path>\<file>	Restore from source hard drive number [hd] and partition ID [id]	
		Optional Parameters	
	/O	Overwrite existing data without warning (advanced users only) Cannot be used with /C or /CR options	
	/C	Clear MBR and EMBR before restore (advanced users only) Cannot be used with /O option	
	/CR	Clear MBR and EMBR, and restore NT signature (advanced users only) Cannot be used with /O option	
	N	Suppress prompt to reboot after restore (advanced users only)	
	V	Validate the image before restoring	
	A	Set the restored partition active	
	X	Expand the restored partition to fill leftover free space, if any	
	X[mb]	Expand the restored partition to fill leftover free space, if any, minus the number of megabytes specified by [mb]	
	Z	Restore a Linux partition without changing the hard drive reference.	
	M	Restore to the first block of free space on the destination drive that is large enough to accommodate the source partition	

Usage Examples
`image.exe /R0VAX d:\system~1\monthl~1` Restores to destination hard drive number 0 (/R**0**VAX) Restores from backup source d:\system~1\monthl~1 (the MS-DOS 8.3 naming convention is used) Provides overwrite confirmation (the default) Will not suppress reboot prompt (the default) Will validate the backup before performing the restore (/R0**V**AX) Will not clear MBR or EMBR (the default) Will set the restored partition active (/R0V**A**X) Will expand the restored partition to fill leftover free space, if any (/R0VA**X**)
`image.exe /R1 /O /CD2backup` Restores to destination hard drive number 1 (/R**1**VAX) Restores from CD/DVD drive number 2 (/CD**2**backup) Restores the file named "backup" (/CD2**backup**) on CD/DVD drive number 2 Does not provide overwrite confirmation (/O) Will not suppress reboot prompt (the default) Will not validate the backup before performing the restore (the default) Will not clear MBR or EMBR (the default) Will not set the restored partition active (the default) Will not expand the restored partition to fill leftover free space, even if present (the default)
`image.exe /R1NV 10x1:\BACKUPS\MARCH` Restores to destination hard drive number 1 (/R**1**NV) Restores from hard drive number 1, partition ID 0x1, and path/file name "BACKUPS\MARCH" (10x1) Provides overwrite confirmation (the default) Will suppress reboot prompt, even if reboot is required (/R1**N**V) Will validate the backup before performing the restore (/R1N**V**) Will not clear MBR or EMBR (the default) Will not set the restored partition active (the default) Will not expand the restored partition to fill leftover free space, even if present (the default)

Additional Notes on Image for DOS Command Line Restores

- The restored partition will go to the same hard drive number (unless overridden) and physical location on the drive as it was backed up from.

- If the source partition was a volume and there is now no extended partition at the original location, Image for DOS will attempt to create the original extended partition. If Image for DOS cannot create the extended partition, it will be restored as a primary partition.

- If the source partition was originally a primary partition, and an extended partition now encompasses that location, it will be restored as a volume.

- If an existing partition or volume occupies the same starting location as the partition to be restored, a warning message will be issued before overwriting that partition or volume. (Unless this warning message is suppressed, as described in the table above.)

Image for DOS Command Line Options: Validate		

	Option	Explanation	
Validate Image		**Required Parameters**	
	/V	Validate image	
	/CDn	/CDn	Validate backup on CD/DVD drive "n"
		/CDSn	Prefix n with S if source CD/DVD uses ASPI driver
		/CDFn	Prefix n with F if source is IEEE 1394 device
		/CDUn	Prefix n with U if source is USB 2 device
	d:\<path>\<file>	Validate backup on drive letter "d"	
	[hd][id]:\<path>\<file>	Validate backup on source hard drive number [hd] and partition ID [id]	
		Usage Examples	

```
image.exe /V d:\system~1\monthl~1
```
Validates the backup file d:\system~1\monthl~1 (the MS-DOS 8.3 naming convention is used)

```
Image.exe /V /CD1
```
Validates the backup mounted on CD/DVD drive number 1 (/CD**1**)

```
Image.exe /V /CDF2
```
Validates the backup mounted on IEEE 1394 CD/DVD drive number 2 (/CD**F2**)

```
Image.exe /V 20x3:\BKUP
```
Validates the backup file on hard drive number 2, partition ID 0x3, and path/file name "BKUP" (20x3)

Glossary

Hard Drive (HD, HDD)

A high-capacity, non-volatile, data storage device. Hard drives are typically installed inside a computer, out of sight.

Partition

A unique area of a hard drive that is allocated for use by a file system. A hard drive can contain many partitions.

File System

An organized structure that allows data to be stored and accessed by a file name. You can basically think of it as the filing system used by the operating system to store and retrieve your data. On a hard drive, the file system almost always resides in a partition.

Volume

Generally this refers to any file system or device that is used to hold data, but here it also represents a specific partition that resides in an extended partition.

Extended Partition

A special type of partition that is divided in to one or more partitions called volumes.

Drive Letter

A single letter that represents a file system in Microsoft Operating Systems. Since a file system on a hard drive is almost always in a partition or volume, it also represents a partition or volume.

Logical Drive

A term used in Microsoft operating systems to describe the specific drive letters which point to volumes. In practical terms, it's the same thing as a drive letter.

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   (g) *HEIRS AND ASSIGNS.* This Agreement shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto, but nothing in this paragraph shall be construed as a consent by TeraByte to any assignment of this agreement except as provided hereinabove.

   (h) *SURVIVAL.* The provisions of paragraphs 1(b)(iv), 1(b)(vii), 1(b)(ix), 2, 3 and 6 of this Agreement shall survive any termination or expiration of this Agreement.

Image for Windows – Order Form

Text version in file REGISTER.TXT (see web site for additional pricing information)

Send to:
TeraByte Unlimited
1350 Town Center Dr. #1049
Las Vegas, NV 89144

Registration Name:	Date:
Mailing Address:	Phone #:
	Phone #:
	Fax #:
E-mail Address:	PC Brand/CPU Type:
Shipping Address:	
	Primary OS:
How did you learn about Image for Windows?	

Description	Unit Price	Qty	Extended Price
Image for Windows* *Image for DOS is included with your purchase	$26.98		$
Portable Image Set/Network Distribution Image (25 Distribution Computers)	$175.00		$
Portable Image Set/Network Distribution Image (50 Distribution Computers)	$255.00		$
Portable Image Set/Network Distribution Image (100 Distribution Computers)	$377.00		$
Portable Image Set/Network Distribution Image (200 Distribution Computers)	$572.00		$
Sub-Total			$
Shipping and Handling Fees for orders not sent TO YOU via e-mail add $9.95			$
Nevada Residents add applicable sales tax			$
TOTAL CHECK OR MONEY ORDER ENCLOSED*			$

Check or Money Order must be drawn on a U.S. bank in U.S. Dollars.

If you do not have a US Checking account, you can send an international postal money order or have your bank issue a check on a U.S. bank in U.S. Dollars. Be sure to send this order form whichever method you choose.

ε Check mailed separately. (Please ask your bank to include your name on the memo line of the check.)

Image for DOS – Order Form

Text version in file REGISTER.TXT (see web site for additional pricing information)

Send to:
TeraByte Unlimited
1350 Town Center Dr. #1049
Las Vegas, NV 89144

Registration Name:	Date:
Mailing Address:	Phone #:
	Phone #:
	Fax #:
E-mail Address:	PC Brand/CPU Type:
Shipping Address:	
	Primary OS:
How did you learn about Image for DOS?	

Description	Unit Price	Qty	Extended Price
Image for DOS	$18.95		$
Portable Image Set/Network Distribution Image (25 Distribution Computers)	$175.00		$
Portable Image Set/Network Distribution Image (50 Distribution Computers)	$255.00		$
Portable Image Set/Network Distribution Image (100 Distribution Computers)	$377.00		$
Portable Image Set/Network Distribution Image (200 Distribution Computers)	$572.00		$
Sub-Total			$
Shipping and Handling Fees for orders not sent TO YOU via e-mail add $9.95			$
Nevada Residents add applicable sales tax			$
TOTAL CHECK OR MONEY ORDER ENCLOSED*			$

Check or Money Order must be drawn on a U.S. bank in U.S. Dollars.

If you do not have a US Checking account, you can send an international postal money order or have your bank issue a check on a U.S. bank in U.S. Dollars. Be sure to send this order form whichever method you choose.

ε Check mailed separately. (Please ask your bank to include your name on the memo line of the check.)