BootIt Bare Metal

User Manual



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Revision: 2016-02-15

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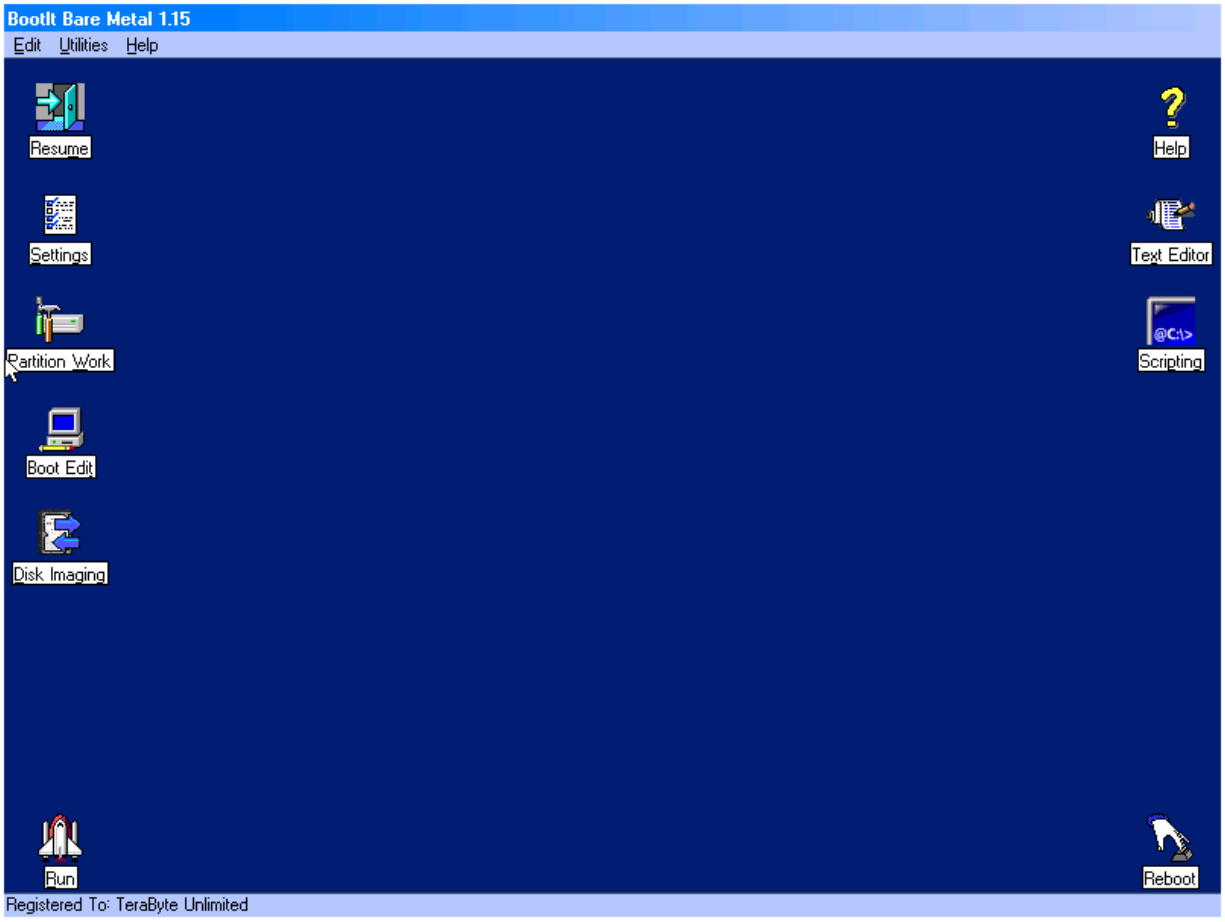
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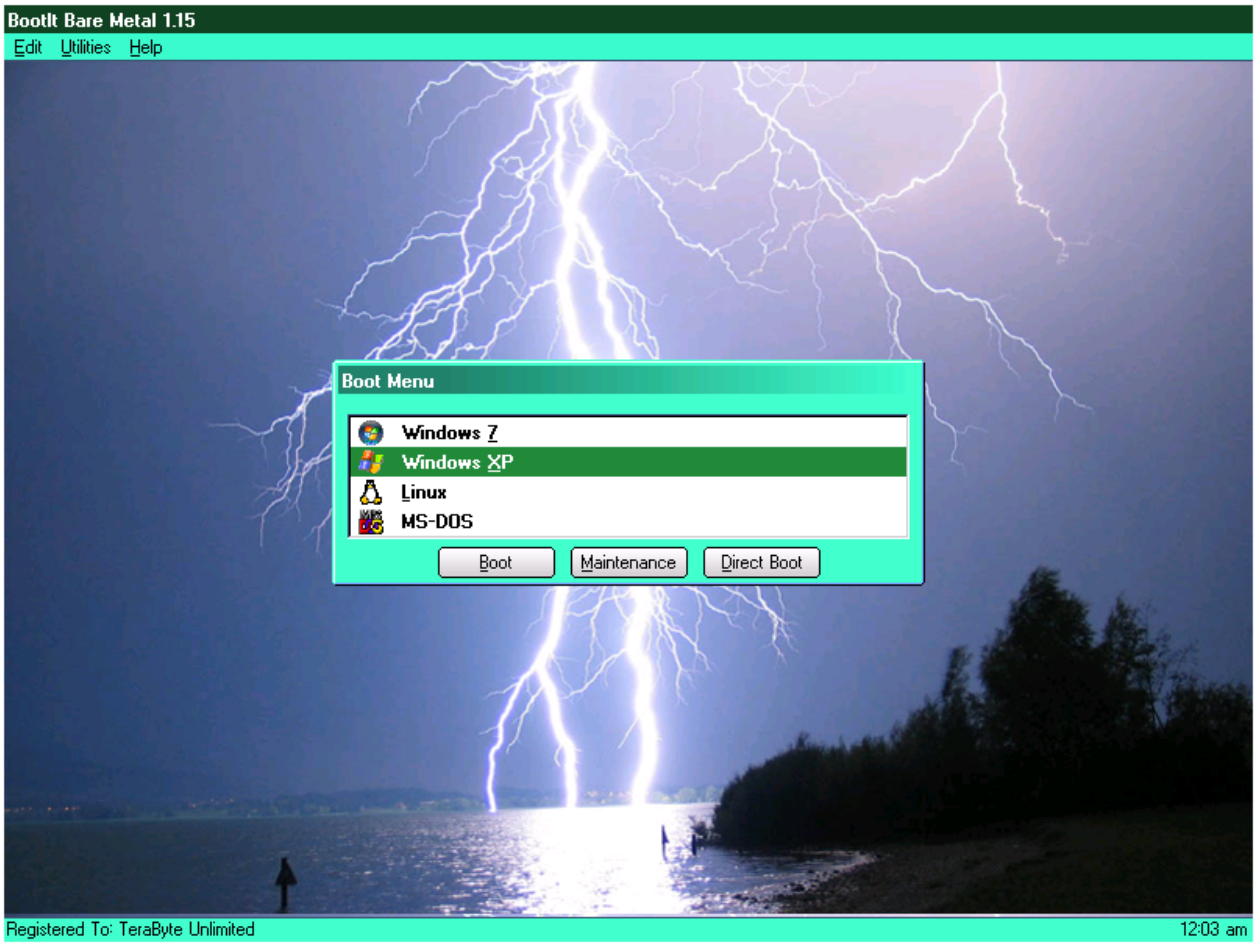
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What You Can Do With BootIt Bare Metal

While you can read a detailed description of each BootIt Bare Metal (BootIt BM) feature in *Using BootIt Bare Metal* on page 29, the following is a brief overview of just some of the many tasks you can accomplish using BootIt BM:

- Create over 200 primary partitions (if desired).
- Create volumes in extended partitions (logical partitions).
- Configure detailed boot items to fit your needs.
- Boot from any partition or volume on up to sixteen hard drives.
- Boot multiple operating systems from a single FAT, FAT32, NTFS or Ext partition.
- Logically swap the boot hard drive to look like the first.
- Logically swap floppy disk drives.
- Boot from drive A: or B: on the fly.
- Resize Ext2/3/4, FAT, FAT32, and NTFS file system partitions without data loss.
- Edit text files on Ext2/3/4, FAT, FAT32, and NTFS file system partitions.
- Edit the Windows BCD file.
- Convert between FAT and FAT32 without data loss.
- Format FAT, FAT32, and NTFS partitions.
- Partition GPT (GUID Partition Table) drives.
- Set up users and passwords.
- Create and restore compressed images of your partitions using the included GUI version of Image for DOS (supports USB 2.0, IEEE 1394, and eSATA drives).
- … and Yes, it supports Windows Server Operating Systems for the same price.





Installing BootIt Bare Metal

Before you install BootIt Bare Metal (BootIt BM), take a moment to read about BootIt BM's limitations and system requirements. Next, complete the procedures in *Before You Begin* on page 9. Finally, create the boot media or ISO image as described on page 10, and then install BootIt BM on your hard drive as described on page 21.

Limitations

BootIt BM supports accessing the drives through the BIOS (basic input/output system) as well as directly using the *BIOS (direct)* option. However, if direct access is not successful and the computer's BIOS limits access to the hard drive for any reason (i.e. speed or size) and no Master Driver Table (MDT) driver is available to correct the limitation, BootIt BM is also limited (in BIOS mode). BootIt BM also supports BIOS LBA Mode and Interrupt 13h extensions.

System Requirements

Verify that your computer system meets the minimum requirements listed below. Note that current systems well exceed these requirements and should support BootIt BM.

- IBM-compatible personal computer
- i80386-compatible microprocessor
- 16 megabytes (MB) of random access memory (RAM)
- Video graphics adapter (VGA)
- Floppy disk drive, CD/DVD drive, or USB flash drive (needed to create the boot media)
- BIOS-accessible hard drive

Changes from BootIt Next Generation

For users of BootIt Next Generation (BootIt NG), the following differences should be noted:

New

- BootIt BM runs in Protected Mode and is not limited by the restrictions imposed by Real Mode.
- GPT (GUID Partition Table) drive support for partitioning (not booting).
- Direct support for PATA/SATA hard drives (bypassing the BIOS for IO).
- Resizing Ext2/3/4 partitions directly as well as editing text files contained on them.
- Multi-OS supports other file systems (for non-FAT type, the boot sector is not controlled; you would use it to change files on boot only).
- Drive geometry can be overridden (note that many of these settings apply to drive imaging only).
- BootIt BM can be installed from a USB flash drive (UFD) booted as a hard drive.

Changed

- Supports up to sixteen drives.
- The Limit Primaries option can now be controlled on individual drives. A global option is still available to change this setting on all drives.

Obsolete / Removed

- Backup/Restore option for backing up and restoring the EMBR (entire first track) of hard drives.
- Backup/Restore option for backing up and restoring the BootIt BM files to a floppy disk.
- Use of third-party UDMA utility. This is no longer needed as BootIt BM supports direct access to devices.
- Partition imaging is no longer an integrated feature of the program. It has been replaced with a GUI (graphical user interface) version TeraByte's Image for DOS program and supports entire drive operations as well as single partitions. This provides full compatibility with TeraByte's V2 imaging programs.

Before You Begin

TeraByte Unlimited has taken every effort to make BootIt BM as safe as possible. However, it is not possible to provide a 100-percent guarantee of safety.

It is extremely important that you do not use any partitioning software (such as Windows Disk Management, DISKPART, or FDISK) if you are not limiting the number of primary partitions (Limit Primaries option is *not* enabled). If you ignore this warning, you are taking a serious risk of data corruption. For more details, read *BootIt Bare Metal Overview for First-time Users*.

Before using BootIt BM on any system for the first time, back up all data on all hard drives. It's better to be safe than sorry.

It's always a good idea to have a System Repair Disc, installation disc, or system disk (for older operating systems) that can be used to boot the system and perform repairs should something ever go wrong. Windows 7 and Vista include repair capabilities on the installation discs, while XP includes the much more limited Recovery Console. Older versions of Windows and all versions of MS-DOS use a startup disk (usually a floppy). You should configure the disk to give you all the functionality you may need by adding any drivers or utilities as well as configuring the configuration files. The following sections explain this process.

Create a Windows 7 System Repair Disc

1. Click the Start button.
2. Click All Programs.
3. Select Maintenance >> Create System Repair Disc.
4. Follow the instructions presented to create the disc.

Create a Windows XP/Vista/Windows 7 startup disk

1. From within Windows Explorer, right-click 3½ Floppy (A:) or Floppy Disk Drive (A:), and then click Format.
2. Select Create an MS-DOS startup disk, and then click Start.

Note

While this type of floppy disk can boot the computer, it will not provide access to any NTFS partitions nor boot into Windows.

Create a Windows 95/98/ME startup disk

1. Click Start, point to Settings, and then click Control Panel.
2. Double-click Add/Remove Programs.
3. In the Add/Remove Programs dialog box, click the Startup Disk tab, and then follow the on-screen instructions to create the disk.

Create an MS-DOS startup disk

1. At the command prompt, type:
   FORMAT A:/S

Note

- You should also copy the following external commands to the diskette: SYS, FDISK, FORMAT,

ATTRIB, and DEBUG.

- If you think you may need access to your CD/DVD drive or another device, be sure to copy the required drivers to the disk.

Prepare for a BootIt BM setup

1. Be sure to read *Before You Begin* on page 9.
2. Verify that you have the latest version of and support information for BootIt BM by visiting: **www.terabyteunlimited.com**
3. If not already done, consider creating a startup disk as described in *Before You Begin*.
4. Back up all the data on all of your hard drives.
5. Create the **BootIt BM Setup** CD/DVD, USB flash drive (UFD), or floppy disk as described on page 10.
6. Read *BootIt Bare Metal Overview for First-time Users* on page 26.
7. Consider reviewing the example tutorials available on the TeraByte website. While these tutorials were created using the previous version of the program (BootIt NG), the basics of the procedures are very similar (**http://www.terabyteunlimited.com/howto/index.htm**).
8. Install or upgrade BootIt BM on your hard disk as described on page 21.
9. Read *Using BootIt Bare Metal* on page 29.
10. If you are going to activate the multiple operating system (Multi-OS) option on a partition, refer to *Using the Multi-OS Feature* on page 70.
11. For some examples of how to install operating systems, refer to *Installing Operating Systems* on page 73.

Review the two-step installation process

A. Create the installation media, floppy boot disk, or bootable ISO (International Standards Organization) image or CD/DVD disc as described in *Step A: Creating the Boot Media or ISO Image*.

B. Use the installation media to install BootIt BM on your hard disk as described in *Step B: Installing BootIt Bare Metal on Your Hard Disk* on page 21.

Note

- Verify that you have the latest version of and support information for BootIt BM by visiting: **www.terabyteunlimited.com**
- Before beginning the BootIt BM installation, be sure to read *Before You Begin* on page 9.

Step A: Creating the Boot Media or ISO Image

The first of two steps in setting up BootIt BM from a downloaded copy of the software is to create the installation boot media. Therefore, you need either one formatted floppy disk that matches the floppy disk drive A: of the computer that will have BootIt BM installed, or one blank writable CD/DVD disc. If you are installing on multiple computers, each computer should have its own boot media and license. If the computer does not have a floppy disk drive, then you must create a bootable CD/DVD disc or use a USB

flash drive. Depending upon your version of Windows, you can either use Windows Explorer or File Manager to complete the following procedure.

Boot Media and UEFI Systems

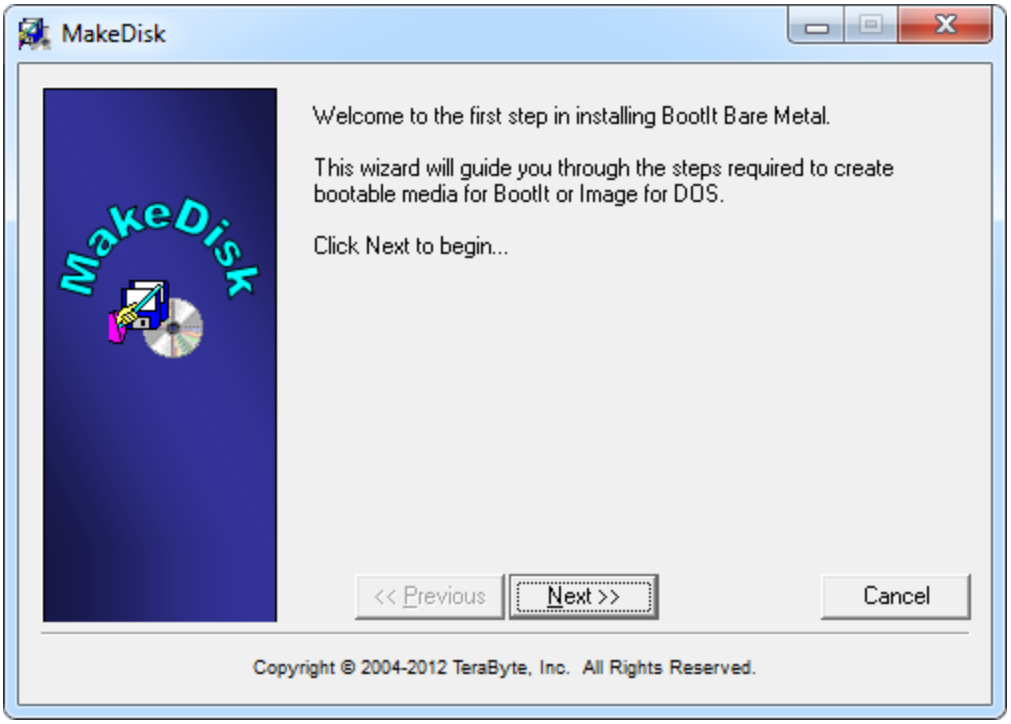
Computer systems that come from the manufacturer with Windows 8 or Windows 10 installed include a new BIOS interface known as the Unified Extensible Firmware Interface (UEFI). This new BIOS interface boots media differently than a traditional BIOS. Microsoft also requires these systems to use a feature of UEFI called Secure Boot. When Secure Boot is enabled, the system will only boot items that have a digital signature that is included in the system firmware. The manufacturers include a digital certificate, provided by Microsoft, to boot Windows on their systems. Secure boot can be disabled (on non-ARM systems) to allow you to boot other operating systems and environments. Boot media must be specifically created for UEFI to allow UEFI to boot from it. However, most systems also include the ability to boot traditional boot media though a method or mode typically called Legacy or BIOS.

BootIt BM will not boot on UEFI systems configured in UEFI mode. To boot on these systems Secure Boot must be disabled and you must enable or use Legacy mode.

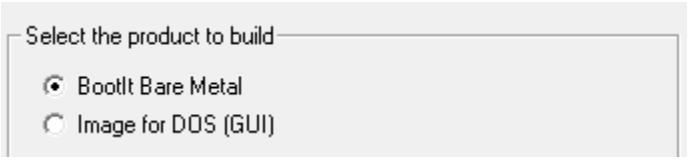
Step A: Create the boot media using the MakeDisk utility (Windows users)

1. Extract the contents of bootitbm_en.zip (Full version) or bootitbm_en_trial.zip (Trial version) to a folder of your choice.
    - If you are using a version Windows that includes a built-in compressed folders feature (XP or later), you can double click the ZIP file and then use the Extract all files link shown in the left pane or toolbar 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.
2. Run MakeDisk.exe from the folder of Step 1. For versions of Windows with UAC enabled, this will trigger a UAC prompt. Select to allow the program to run.

3. The MakeDisk welcome screen is displayed. Click Next to continue.

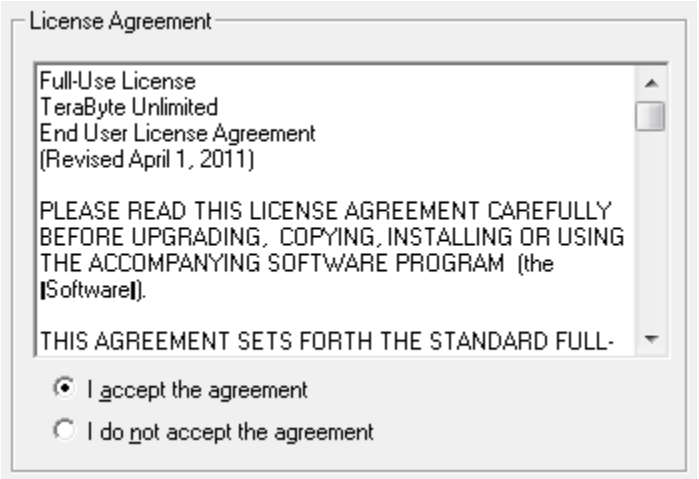


4. Select the product to include in the build:



BootIt Bare Metal	Select to include BootIt BM and, optionally, Image for DOS and Scripting Support (selected in a later step) on the boot media.
Image for DOS (GUI)	Select to include only Image for DOS on the boot media.

5. The product license agreement screen is displayed. Read the license agreement, and, if you accept it, select the I accept the agreement button and click Next.



6. The options available on this step depend on which product you selected in Step 4.



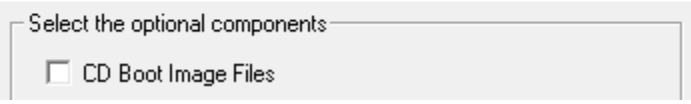


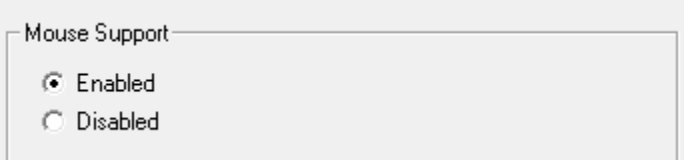
Image for DOS (GUI)	Select to include the GUI version of Image for DOS and the files necessary for Image for DOS to make backup image CD/DVD media bootable. Image for DOS will also be installed on the system when you install BootIt BM using the boot media. When creating the floppy disk version of the boot media, using this option requires a 2.88MB floppy disk. This option is available if BootIt Bare Metal was selected in Step 4.
Scripting Support	Select to include TBOSDT Pro for BootIt. Supports adding, deleting, sliding, copying, and resizing partitions in addition to the standard features of TBOSDT Pro. This option is available if BootIt Bare Metal was selected in Step 4 and you are using the purchased version.
CD Boot Image Files	Select to include the files necessary for Image for DOS to make backup images saved to CD/DVD media bootable. When creating the floppy disk version of the boot media, using this option requires a 2.88MB floppy disk. This option is available if Image for DOS (GUI) was selected in Step 4.

7. The MakeDisk wizard will now proceed through the option screens, each of which is detailed below. Select the desired options on each screen and then click Next to proceed.

Note

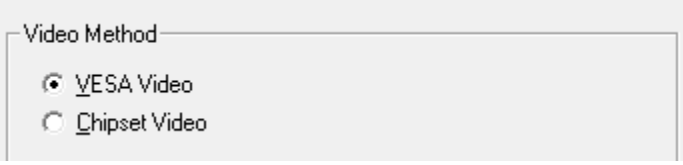
When booting a computer using the BootIt BM setup media, be aware that all settings except the video mode/method and mouse support come from the installed copy of BootIt BM if it's installed. The video mode/method and mouse support option are updated when BootIt BM is reinstalled/updated, but the other settings are not. For example, the USB hang options, etc. as configured on the setup media would never get used since they would be read from the installed bootitbm.ini file. For systems on which BootIt BM is not installed the settings as configured here will be used when the setup media is booted.

Mouse Support



Enabled	Loads the mouse driver. Note that the BIOS must support the mouse. This may require enabling the *USB Legacy Support* option in the BIOS. Default: Selected
Disabled	The mouse driver will not be used and you will not be able to use the mouse in BootIt BM or Image for DOS.

Video Method

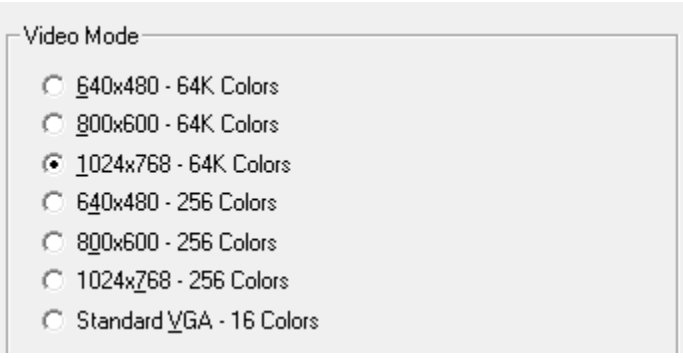


VESA Video	Uses the VESA Video standard for the display instead of a specific chipset implementation. Support is provided by the video card's BIOS. This is the recommended video method. Will fall back to Chipset Video if VESA is not supported. Default: Selected
Chipset Video	Attempts to access the video chipset directly for supported chipsets. It is not recommended to select this option unless you know for certain it is required (e.g. VESA doesn't work or you're instructed to use it by TeraByte support). Will fall back to VESA Video if chipset detected is not supported.

Note

While each video method should fall back to the other one if it fails, this may not always happen. In this case, try the other video method.

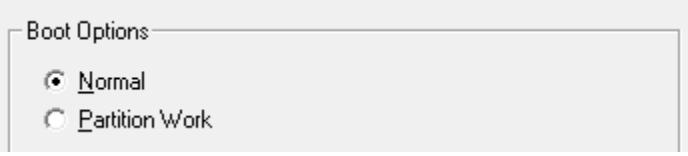
Video Mode



For the best viewing experience, it is recommended to select 800x600 or higher with 64K colors.

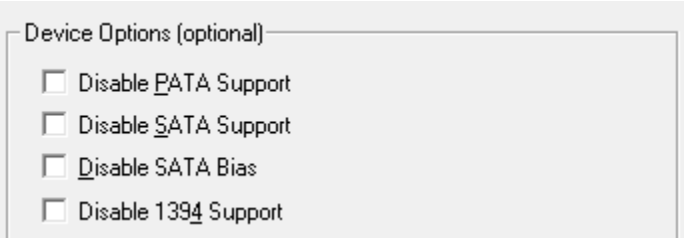
640x480, 800x600, 1024x768, – *64K Colors*	The selected video resolution will be used with a color depth of 64K. A selected background image will be displayed when using one of these modes.
640x480, 800x600, 1024x768, – *256 Colors*	The selected video resolution will be used with a color depth of 256. A selected background image will be displayed when using one of these modes if it is a 256 color image.
Standard VGA – *16 colors*	Standard VGA mode (640x480) will be used with only 16 colors. A selected background image will not be displayed when using this mode. Note: This video mode cannot be selected in BootIt BM's Display Settings. If you must use this video mode, select it here.

Boot Options



Normal	Select this option to enable the BootIt BM boot media to run normally and boot to the Installation & Recovery Boot Menu. Default: Selected
Partition Work	Selecting this option causes the BootIt BM boot media to start in **Partition Work** mode instead displaying the Installation & Recovery Boot Menu. This is useful when you plan on using the BootIt BM boot media for doing partition work without installing BootIt BM. Note: If BootIt BM or BootIt NG is already installed, the Installation & Recovery Boot Menu will still be displayed.

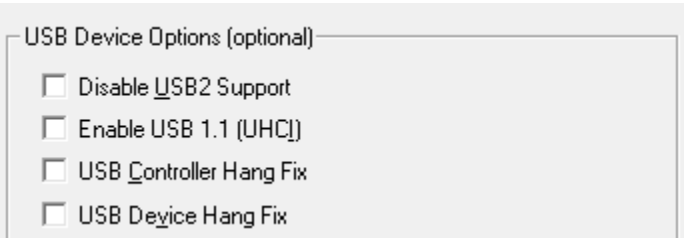
Device Options



Make any desired changes to the default device options BootIt BM will use when booting the boot media on a system that does not have BootIt BM installed. These options will also be used when BootIt BM is installed. By default, all options are unselected.

Disable PATA Support	Select this option to prevent BootIt BM and Image for DOS from directly accessing PATA controllers. Drives connected to the PATA controller will only be accessible through the BIOS. *BIOS (direct)* access for these drives will be disabled.
Disable SATA Support	Select this option to prevent BootIt BM and Image for DOS from directly accessing SATA controllers. Drives connected to the SATA controller will only be accessible through the BIOS. *BIOS (direct)* access for these drives will be disabled. This option should be selected if you are experiencing system hangs or drive access problems when using BootIt BM. These issues arise when BootIt BM cannot match a SATA drive to a BIOS drive and defaults to using the BIOS drive. When the BIOS drive is accessed, the BIOS will hang the system until it times out (if ever). Note: Disabling SATA support prevents access to SATA CD/DVD drives.
Disable SATA Bias	Because some systems have no support whatsoever to match BIOS and SATA drives (see Disable SATA Support option), BootIt BM employs a special matching routine to try to identify the BIOS drives that relate to each SATA drive. In some cases, BootIt BM might inadvertently match a BIOS drive to a SATA drive incorrectly. If you experience such an issue, recreate the boot media with the Disable SATA Bias option selected.
Disable 1394 Support	When this option is selected, BootIt BM and Image for DOS will be unable to access IEEE1394 (FireWire) drives.

USB Device Options

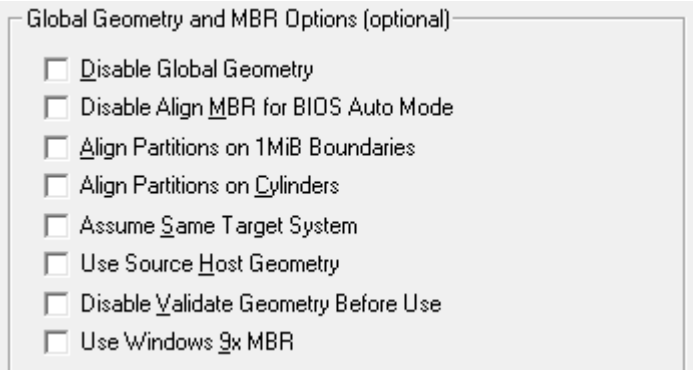


Make any desired changes to the USB options. Note that the USB Controller Hang Fix and USB Device Hang Fix options only apply to the command line which starts the BootIt BM program. Both of the "USB Fix" options may result in slower USB access, but will prevent hangs with certain controllers and/or devices. By default, all options are unselected.

Disable USB2 Support	Disables support for USB 2.0 hard drives and CD/DVD drives. If disabled, USB 2.0 hard drives will still be available through the BIOS if it supports them (note that most newer systems only have them show up if connected when the computer is booted). It may be necessary to disable this option if BootIt BM or Image for DOS locks up when looking for USB drives.
Enable USB 1.1	Select to enable USB 1.1 (UHCI) support for older systems that don't

(UHCI)	support USB 2.0. Some new systems require this option or the USB port will hang and stop detection of any USB devices. This option does not affect USB 2.0 support.
USB Controller Hang Fix	If you experience problems with USB 2.0 devices hanging, you can enable this option to attempt to correct it. This option can degrade USB IO performance, but will prevent hangs with certain controllers and/or devices.
USB Device Hang Fix	If you experience problems with USB 2.0 devices hanging, you can enable this option to attempt to correct it. This option can degrade USB IO performance, but will prevent hangs with certain controllers and/or devices.

Global Geometry and MBR Options



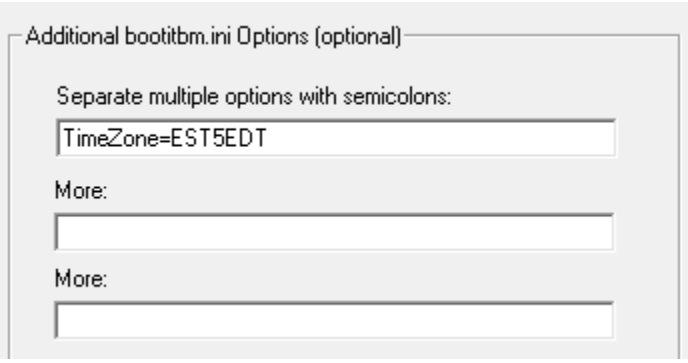
These options control how BootIt BM and Image for DOS manage drive geometry (they will be the default for all drives in the system that have the Use Global Settings options selected in Drive Settings). Note that all of these options can also be changed in BootIt BM. By default, all options are unselected.

Disable Global Geometry	Disables the global geometry settings. BootIt BM and Image for DOS will revert to using program defaults or drive specific overrides (equivalent to those used by Image for DOS prior to version 2.52). For normal use, it is not recommended to disable Global Geometry, which provides an easy method of applying geometry settings system-wide.
Disable Align MBR for BIOS Auto Mode	The Align MBR for BIOS Auto Mode option is enabled by default to prevent problems with unaligned partitions on systems with their BIOS using Auto Mode. Many newer systems use Auto Mode by default, and some even don't have an option to turn it off. Select this option if you want to disable Align MBR for BIOS Auto Mode.
Align Partitions on 1MiB Boundaries	This option provides a convenient way to enable 1MiB partition alignment for all drives (drives with 512 byte sectors will be aligned on 2048 sectors; drives with 4096 byte sectors will be aligned on 256 sectors). When this option is enabled, partition alignment will be configured using the Windows Vista and Windows 7 standard. This is popular with users of SSD type drives, which require this alignment for optimal performance.
Align Partitions on Cylinders	This option is used in conjunction with Align Partitions on 1MiB Boundaries to provide an easy way to auto determine alignment and to default a blank

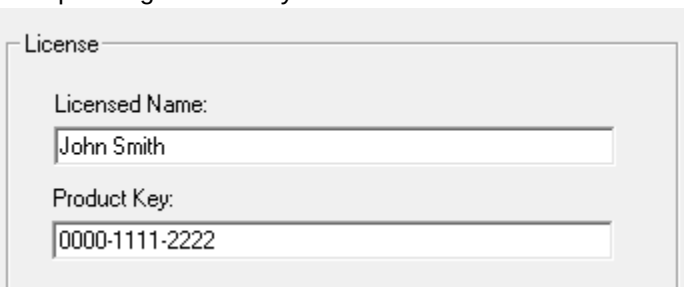
	drive to use either 1MiB alignment or cylinder alignment. For more details, please see *Settings | Align on Cylinder* on page 64.
Assume Same Target System	Enable this option to prevent problems when a backup image of another system's drive is restored to a drive connected to a different system and drive will be put back into the original system. This option uses drive geometry based on the MBR entry of the first partition in the backup image file and applies only when restoring a backup image. For more details, please see *Settings | Assume Same Target System* on page 64.
Use Source Host Geometry	Enables the use of the drive geometry saved in the backup image that represents the geometry from the environment (Windows, Linux, or DOS) used to create the backup file. The saved drive geometry is used for the restored partition(s) instead of the geometry in use on the current system (which may differ). For more details, please see *Settings | Use Source Host Geometry* on page 65.
Disable Validate Geometry Before Use	The Validate Geometry Before Use option is used to ensure that the geometry from the MBR on the original system is aligned to known standards before accepting it for use. It only applies when the Assume Same Target System option is enabled. Select this option if you want to disable Validate Geometry Before Use. For more details, please see *Settings | Validate Geometry Before Use* on page 65.
Use Windows 9x MBR	Windows Vista and later tied the kernel loader to the MBR code such that using previous MBR code may not allow Windows Vista or later to boot on certain machines. Leave this option unselected (the default) to use the code base compatible with Windows Vista or later. The new MBR code will continue to boot older OSes with the exception of some (rare) configurations using Win9x on FAT32. For more details, please see *Settings | Use New Windows MBR* on page 65.

8. The **Additional bootitbm.ini Options** screen is displayed. Enter any additional bootitbm.ini file options you require. If unsure, just leave the fields blank (most of the options you should set to use BootIt BM or Image for DOS are set for you by default). For example, you might want to use the

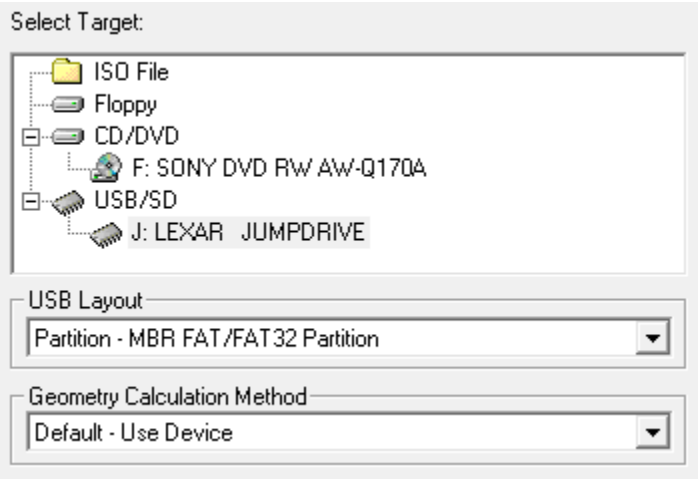
TimeZone variable to identify your time zone (as shown below). Click Next to continue.



9. The BootIt BM **Registration Screen** is displayed. If you have purchased a BootIt BM license, enter the registration information you were provided with in the text boxes shown on this screen. If you wish to use the trial version of BootIt BM, simply leave the text boxes empty, which will result in BootIt BM operating in a 30-day time-limited trial mode. Click Next.



10. The **Select Target** screen is displayed. Choose the target that MakeDisk should use.



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

If you choose the USB/SD option to create a bootable flash drive, select the USB Mode to use:

Normal - Raw Boot Image	Creates a 1.44 MB floppy diskette image on the UFD. Any additional space on the UFD (beyond the floppy image size) is not available for use. Think of this option as if MakeDisk were formatting the UFD to be a 1.44 MB floppy. If you were to view the UFD in Windows, the drive would appear to be 1.44 MB, even though it might have originally been a 4 GB drive, and formatted as FAT.
No Partition -	The entire UFD is configured as one big unpartitioned device. If you were

FAT/FAT32 Volume	to view a 4 GB UFD created using this option in Windows, you'd see free space beyond the amount used by MakeDisk up to the size of the drive. This free space is available to be used normally. If the UFD is 4GB or smaller, it's formatted as FAT. Otherwise, it's formatted as FAT32.
Partition - MBR FAT/FAT32 Partition	The entire UFD is used as a single bootable partition. The computer's BIOS will usually detect this type of UFD as a hard drive. Any unused space on the UFD is available to be used normally. If the UFD is 4GB or smaller, it's formatted as FAT. Otherwise, it's formatted as FAT32.
Partition - MBR FAT/FAT32 Partition (Int13h Extensions)	This is the same as the Partition - MBR FAT/FAT32 Partition mode except that the INT 13 Extension is used (this is required for some computers to boot a UFD).

The Geometry Calculation Method options control how the drive geometry is calculated for the USB/SD device. It is recommended to try the Default option first. If the device fails to boot properly (e.g. black screen, boot failure, device not found, etc.), the other options can be tried. Make note of which option works properly for future use.

More information on the above can be found in the following KB article:
http://www.terabyteunlimited.com/kb/article.php?id=317

11. 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.
Note: *If you created a boot CD/DVD the disc will appear blank, but it is still bootable.*
12. If you opted to create bootable media in Step 7, you are done with Step A, proceed to *Step B: Installing BootIt Bare Metal on Your Hard Disk*. If you selected the ISO File option instead, you will first have to use other CD/DVD authoring software, such as BurnCDCC, to create a bootable BootIt BM installation disc from the ISO file. Once you have done that, proceed to *Step B: Installing BootIt Bare Metal on Your Hard Disk*.

Step A: Create the boot disk or ISO image (DOS users)

DOS users will need to create the boot media using a Windows system (see *Step A: Create the boot media using the MakeDisk utility (Windows users)*).

Step A: Create the boot disk or ISO image (Linux users)

1. Uncompress the contents of bootitbm_en.zip (Full version) or bootitbm_en_trial.zip (Trial version) to its own folder on your hard disk, open a Terminal, and then change to that directory.
2. Do one of the following:
   - **To create the floppy boot disk** using the cp or dd command (if you accept the license agreement), verify that the disk is not mounted and that you are signed on as root, and then type:
     ```
     cp  BOOTITBM.F35  /dev/fd0
       or
     dd  if=BOOTITBM.F35  of=/dev/fd0  bs=1024
     ```
   - **To create the bootable CD/DVD disc** (if you accept the license agreement):
     Type:
     ```
     mkisofs  -o bootitbm.iso  -V BootItBM  -c boot.cat  -b BOOTITBM.F35  BOOTITBM.F35
     ```
     Then place a blank disc into the burner and type:
     ```
     cdrecord  -v  speed=8  dev=/dev/scd0  bootitbm.iso
     ```

Note: *Be sure to adjust dev= to the appropriate value. With the disc not mounted, you can run cdrecord --devices to determine the value for your CD burner.*

3. Proceed to *Step B: Installing BootIt Bare Metal on Your Hard Disk*.

Step B: Installing BootIt Bare Metal on Your Hard Disk

In this step, you will install BootIt BM onto your hard drive using the installation media that you created in Step A.

Warning to Windows 8 and Windows 10 Users

You must disable the Windows 8 and Windows 10 **Fast startup** option or you risk corruption of your partitions and data. This option can be disabled by viewing the Windows partition's properties in Partition Work and clicking the Disable Fast Start button. This can be done after the installation of BootIt BM has completed.

Step B: Boot from the floppy disk, CD/DVD, or USB flash drive

1. Consider doing the following:
   - From within BIOS (basic input/output system) setup, verify that your system boot up sequence (boot order) is correct:
     - Most newer computers display either a list of devices containing all boot devices or separate lists for each type of device. Make sure to place the drive or device from which you will be booting the BootIt BM Setup media *before* the internal hard drive.
     - Older computers usually have a single boot order menu and display generic names for the devices:
       - For the floppy disk drive, it should be something similar to: A:/C: and not C:/A:
       - For the CD/DVD drive, it should be something similar to: CDROM/C:
       - For a USB flash drive, it should be something similar to USB-FDD or USB-ZIP.
   - Disable the Boot-Sector/MBR virus protection option (if it exists). If you leave the virus protection option enabled, it may cause issues.
2. Insert the BootIt BM Setup media in the correct drive or, if using a USB flash drive, plug it into a USB port.
3. Restart or reboot the computer.
   - BootIt BM should begin loading from the CD/DVD, USB flash drive, or floppy disk.
   - If BootIt BM doesn't seem to load and your system starts as it normally does, double-check that you configured the BIOS boot order correctly.
   - An EMBRL Missing message when booting from a floppy typically means a bad diskette. The same message for CD/DVD typically means a bad disc or the BIOS does not properly maintain 1.44MB emulation (contact the BIOS or motherboard manufacturer for a BIOS update).

Note

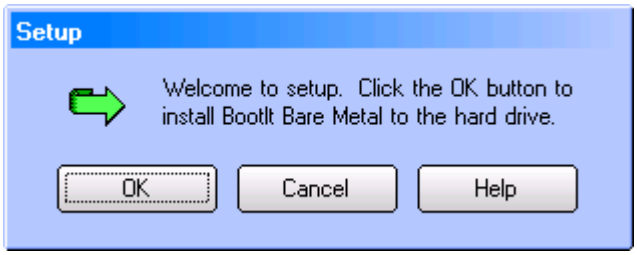
- If you are installing BootIt BM for the first time, refer to *Install BootIt BM for the first time*.
- If you are upgrading from a version of BootIt NG, refer to *Upgrade from an earlier BootIt Product*.
- If you are upgrading from an existing BootIt BM installation, refer to *Upgrade from an earlier*

version of BootIt BM.

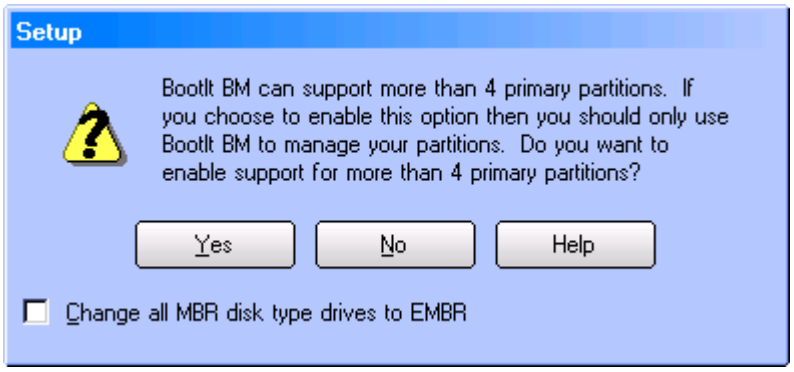
- If you are upgrading an installation of the trial version of BootIt BM, recreate the BootIt BM Setup media using the full version and enter your name and key when prompted. Then refer to *Upgrade from an earlier version of BootIt BM*.

Install BootIt BM for the first time

1. After you boot from the **BootIt BM Setup** media, at the Welcome to setup prompt, click OK.



2. You are then asked if you want to enable support for more than four primary partitions.

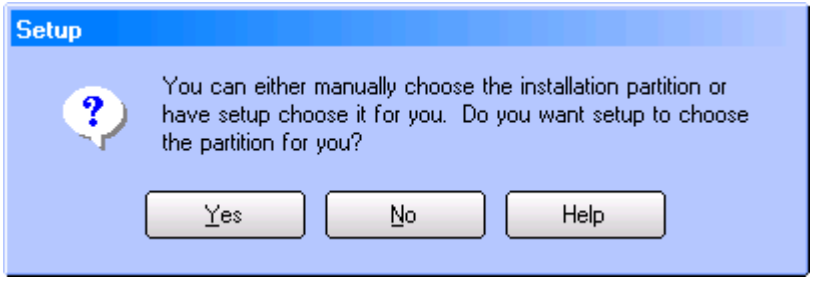


   Select the Change all MBR disk type drives to EMBR option to have BootIt BM convert all MBR type drives to EMBR. Existing EMBR and GPT drives will not be changed.

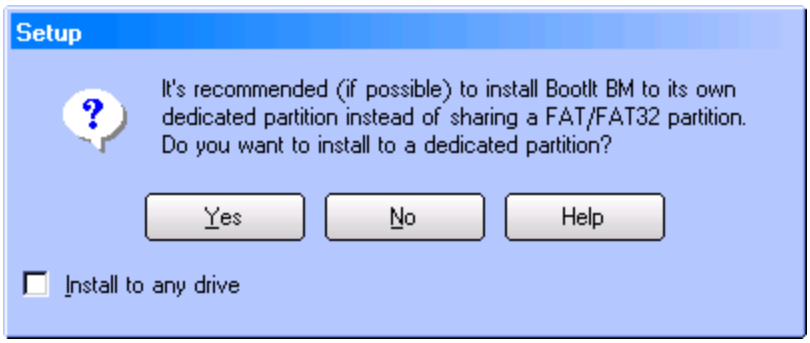
   Click Yes to enable support for more than four primary partition. Note that you then must partition your hard drives only using BootIt BM.

   Click No, to limit primary partitions to four. You can continue to use any other partitioning software, such as Windows Disk Management, DISKPART, or FDISK.

3. When asked how you want the partition chosen, click Yes to have Setup choose the partition for you or click No to choose the partition manually as described on page 23.



4. You are then be asked if you want to install BootIt BM to its own dedicated partition.



Installing BootIt BM to its own partition requires unpartitioned space and takes up one primary partition, which could be an issue if you chose not to enable support for more than four primary partitions.

If Setup cannot accommodate your choice, it notifies you later and gives you the option to change your selection. If you don't want to change your selection and need further help, review the first part of tutorial one by visiting: **www.terabyteunlimited.com/bootit-next-generation-tutorials.htm**

Select the Install to any drive option to allow BootIt BM to install itself to any drive. If not selected, BootIt BM will only attempt to install to the booting drive (HD0). Note that BootIt BM will convert MBR type drives to EMBR as it searches for the first available drive. Conversions will stop once an installation location is found.

Click Yes to have BootIt BM use a dedicated partition. This is the recommended option.

Click No to have BootIt BM search for a FAT/FAT32 partition to share.

5. When Setup indicates that it has all of the needed information, click OK to begin copying files to your hard disk, and then refer to *Complete the installation* on page 24.

Upgrade from an earlier version of BootIt BM

1. After you boot from the BootIt BM Setup media, on the Installation & Recovery Boot Menu, click Upgrade BootIt Bare Metal, and then click OK.
2. At the Welcome to setup prompt, click OK.
3. When asked how you want the partition chosen, click Yes to have Setup choose the partition for you or click No to choose the partition manually as described in *Choose the partition manually*.
4. When Setup indicates that it has all of the needed information, click OK to begin copying files to your hard drive, and then refer to *Complete the installation* on page 24.

   If Setup is unable to find the BootIt EMBRM partition, a message will be displayed and you will need to reinstall BootIt BM. When asked if you want to enable support for more than four primary partitions, the Update choice on all drives option will be available. If selected, the Limit Primaries option for each drive will be updated to reflect your choice. The Limit Primaries option will not be changed for any existing EMBR type drives with more than four primary partitions.

Choose the partition manually

When installing BootIt BM for the first time (page 22), upgrading from an earlier BootIt product (page 24), or upgrading an earlier version of BootIt BM (page 23), when asked how you want the partition chosen, if you click No and decide *not* to have Setup choose the partition for you, then you must manually complete this procedure to prepare and choose the partition.

1. Read the displayed message indicating that you must ensure that an Extended Master Boot Record (EMBR) exists on hard disk 0 (HD0) and on the drive chosen for installation, and then click OK.

2. In the Work with Partitions dialog box that appears, in the Actions section, you'll see the Setup button which only appears in this dialog box when accessed during installation.
3. Ensure that the booting drive (usually HD0) has an EMBR. Select the booting drive, if not already selected. If the text above the partitions does not read *EMBR Partitions*, click the Change Disk Type button and then click the EMBR button.
4. If the partition that you want to create or use is not on the booting drive, select the desired drive to create an EMBR on it. If the text above the partitions does not read *EMBR Partitions*, click the Change Disk Type button and then click the EMBR button.
5. With the appropriate hard drive selected, click the desired FAT, FAT32, or BootIt EMBRM (Extended Master Boot Record Manager) primary partition for installation.

   If one does not exist, you can create and format it at this time. If there is no Free Space (unpartitioned space) to create it, resize one of the existing primary partitions to be 8 MB smaller. Ensure the desired partition is highlighted before continuing with the next step.
6. Click Setup to continue. Setup will notify you if something still needs to be configured.

   If the selected partition is not on HD0 you will be asked if you would like setup to assume the selected drive is the boot drive. Selecting Yes will continue and configure the selected drive to boot into BootIt BM (this can be helpful in cases where HD0 is seen incorrectly as the booting drive or you wish to install BootIt BM independently on a non-booting drive). Selecting No will configure HD0 to boot into BootIt BM.

   If the Setup button is grayed out and unavailable, then it either means that the booting drive does not have an EMBR, the current drive does not have an EMBR, or the partition that you highlighted is not a FAT, FAT32, or BootIt EMBRM type.
7. When Setup indicates that it has all of the needed information, click OK to begin copying files to your hard disk and then refer to *Complete the installation*.

Upgrade from an earlier BootIt Product

When BootIt Next Generation (BootIt NG) is already installed on your computer, the BootIt BM upgrade will use your existing partition and volume names. Additionally, boot menu items and program options applicable to BootIt BM will be retained.

Note

For older versions of BootIt (BootIt 2.x, BootIt Lite, or BootIt Direct), it is necessary to first upgrade to BootIt NG before upgrading to BootIt BM. Otherwise, you must perform a clean install of BootIt BM.

1. After you boot from the BootIt BM Setup media, at the Welcome to setup prompt, click OK.
2. When asked how you want the partition chosen, click Yes to have Setup choose the partition for you or click No to choose the partition manually as described on page 23.
3. When Setup indicates that it has all of the needed information, click OK to begin copying files to your hard disk, and then refer to *Complete the installation*, below.

Note

Make sure to keep your BootIt NG boot media if you need to be able to restore IMG image files. BootIt BM will not restore IMG files.

Complete the installation

1. Use your operating system's disk copy feature to create a backup copy of the startup disk and keep it in a safe place.

You will need the startup disk to recover from any problems or situations that may arise in the future. If you ever update your startup disk or use a new one, be sure to update your backup disk as well.

2. Consider changing the BIOS boot sequence to boot from the hard drive first and the CD/DVD drive (or floppy drive) second. This will allow you to use the Next BIOS Device option in BootIt BM.

Uninstalling BootIt Bare Metal

1. If you *do not* have primaries limited, then the first step to uninstalling BootIt BM is to make sure that you have no more than four primary partitions per hard drive.
2. Use the Work with Partitions dialog box to delete any extra primary partitions as described in *Working with Partitions* on page 38.
3. On the Utilities menu, click Uninstall.
4. In the Uninstall dialog box, select the Remove BootIt Bare Metal checkbox.
5. *Optional:* To also remove all groups and captured operating system files, select the Remove Group/Captured OS Files checkbox.
6. Click OK.

Note

The uninstall option is option is only available when using a copy of BootIt BM that has been installed to the hard drive. The currently active partition will remain the active partition when BootIt BM is uninstalled. If your system boots the incorrect partition or won't boot at all, you will need to set the correct partition active. This can be done using DISKPART or FDISK, or by using the BootIt BM Setup media as described in the next procedure, *Set the correct partition active using the BootIt BM Setup media*.

Set the correct partition active using the BootIt BM Setup media

1. After you uninstall BootIt BM (as described earlier in *Uninstalling BootIt Bare Metal*), if your system boots the incorrect partition or won't boot at all, boot the BootIt BM Setup media.
2. To enter maintenance mode, click Cancel.
3. Click Partition Work.
4. Click View MBR.
5. Select the partition that you want active, and then click Set Active.
6. Use the Move Up or Move Down buttons to reorder the partitions if necessary.
7. Click Std MBR if you want to ensure the standard MBR boot code is being used. For Windows 7 systems, Win7 MBR can be used instead.
8. Click Apply.

BootIt Bare Metal Overview for First-time Users

To help you understand BootIt BM, let's start with a description of the partition table and how your system boot process normally works.

The first sector (or block of data) on your hard disk is called the Master Boot Record (MBR). The MBR contains the partition table that defines the partitions (or areas) on your hard drive and a small program that transfers control to the first sector (boot sector) of one of the partitions.

The partition table can contain up to four primary partition entries that contain information on where the partition begins and ends, a flag to mark the active (or bootable) partition, and the type of file system used in the partition.

You can divide a special type of primary partition—an extended partition—into several smaller areas (i.e. volumes or logical partitions). The volumes are contained entirely within the extended partition and they do not require extra space in the partition table.

Some point after the system starts, the BIOS reads in the MBR and transfers control to the program in the MBR. This program then looks for the active partition and, if found, loads the boot sector of that partition and transfers control to it.

Boot sectors are operating- and file-system specific. The program located in this boot sector is responsible for starting the process that loads and executes the OS kernel.

Now that you know the basics of how the system normally boots, let's focus on the EMBR and how it is used with BootIt BM.

The Extended Master Boot Record (EMBR) specification dynamically extends the capabilities of the system.

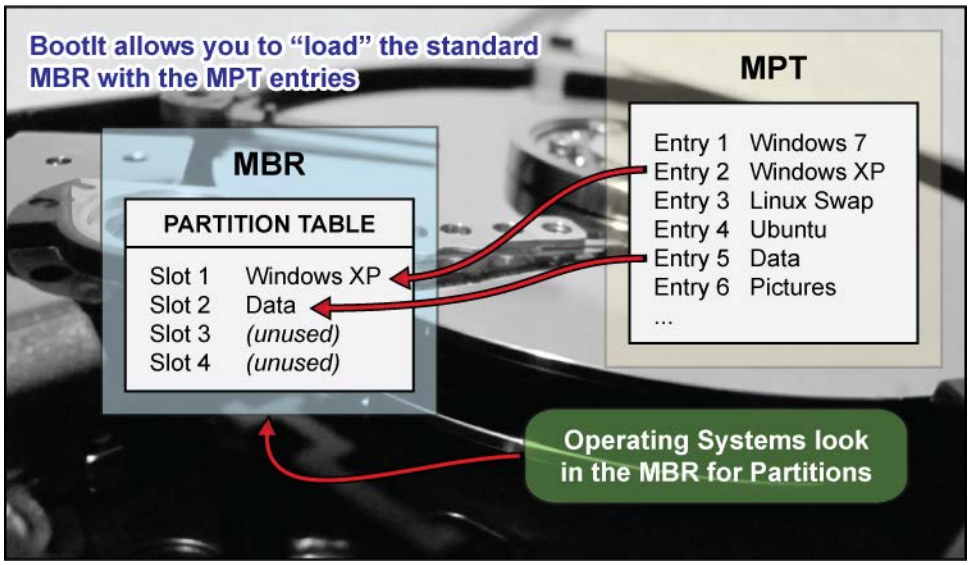
The EMBR contains a block of code, called the EMBR Loader, and three tables—one for partition information, one for boot file information, and one for information on drivers that may need to be loaded on your system. Each of these tables can contain up to 255 entries.

The table in the EMBR that contains partition information is called the Master Partition Table (MPT). This table is used in place of the partition table to contain all partition information.

When an operating system is loading, at some point it looks for partitions in the partition table. At the very least it must find itself and typically assigns access to any of the other partitions or volumes that it recognizes.

BootIt BM handles the MPT and partition table by letting you create bootable configurations (or boot items) allowing you to choose which partitions from the MPT are to be placed into the partition table (as seen in the following graphic and on page 31). If you are using the Limit Primaries setting, then all partitions from the MPT are automatically placed into the partition table. When the boot item is booted, the MBR partition table is updated to match the configuration of the boot item's MBR Details.

You should now understand why, unless you're using the Limit Primaries setting, you must not use any utilities that expand, move, or create a partition if it recognizes only the partitions in the partition table.



To get other partitions to show up in the operating system, as you can see from the figure above, you must assign the partitions to be loaded (up to four). Failure to correctly load the MBR Details section of the Boot Item—see the screen capture in *Set up the Normal Boot Menu* on page 30—is the most common cause of missing partitions.

Using Image for DOS

BootIt Bare Metal includes the GUI (graphical user interface) version of TeraByte's Image for DOS program, supporting imaging entire drives as well as single partitions and providing full compatibility with TeraByte's V2 imaging programs.

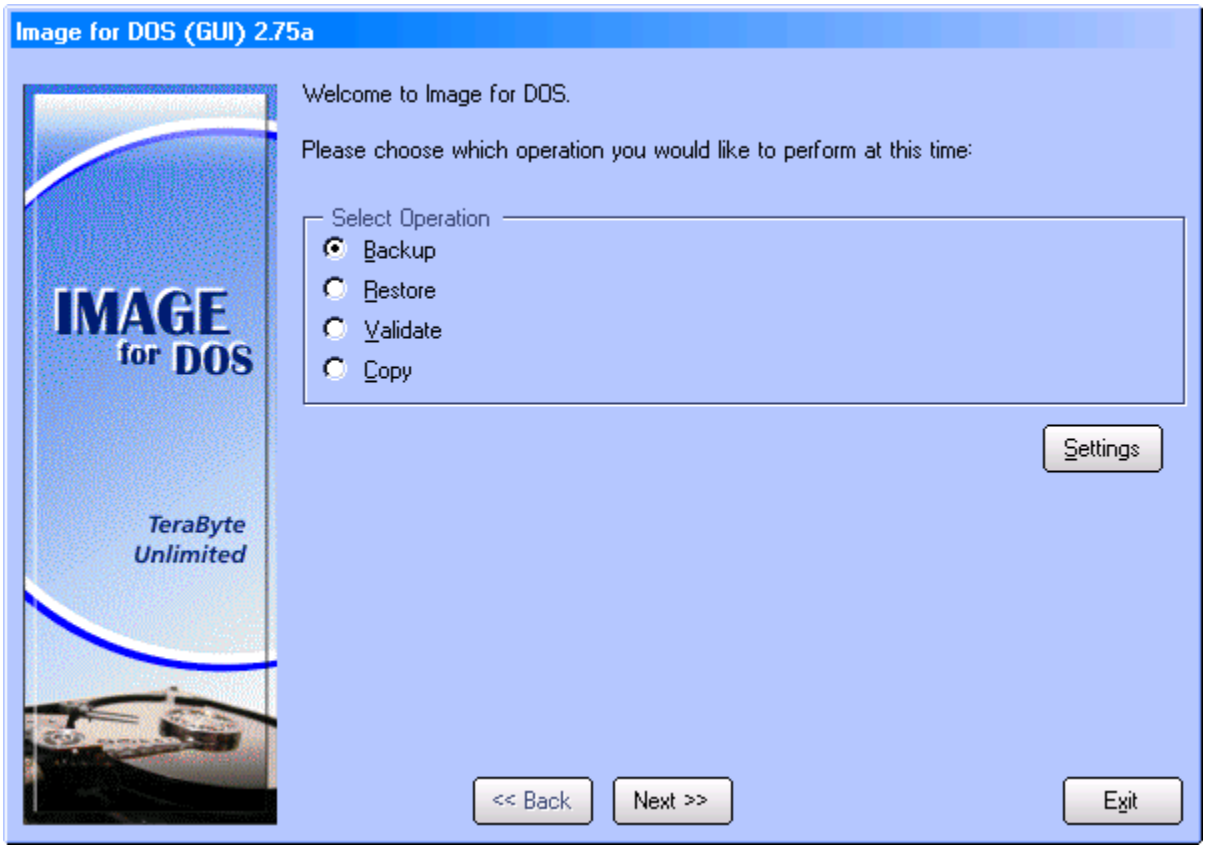


Image for DOS is automatically installed with BootIt BM if it was included on the Setup media. A separate installation (e.g. to a DOS partition) is not required.

To run Image for DOS, click the Disk Imaging icon on the desktop or select Disk Imaging from the Utilities menu.

For instructions on using Image for DOS, please see the Image for DOS manual.

Using BootIt Bare Metal

BootIt BM can be used with a mouse and keyboard or just a keyboard. The following shortcut keys work with most dialog boxes in BootIt BM:

Press	To
Esc	Cancel
F1	Help
F10	OK, Close, or Apply
F12	Capture Screen to Floppy Drive A:
Ins	Add, Create, or Fill
Del	Delete or Clear
Tab	Next control
Shift+Tab	Previous control
Arrow keys	Move highlight, Increment/Decrement
Spacebar	Activate, Toggle checkbox, Open drop-down box

Several special shortcut keys are also available:

Press	To
Alt+0 *(zero)*	Turn off most computers at the Boot Menu or main desktop. *You cannot use this shortcut when editing a Boot Menu.*
Ctrl-Alt-Del	Reboot the computer.
Ctrl+Z	Reset the mouse driver. *May cause loss of mouse control on some systems.*

Most controls can be access directly by using their shortcut key (underlined letter or number) with the **Alt** key. For example, on the Boot Menu, if you press and hold the **Alt** key and then press the **M** key, you will enter Maintenance Mode (**Alt+M**).

Shortcut keys specific to an area of BootIt BM will be listed in the appropriate section.

The Boot Menu

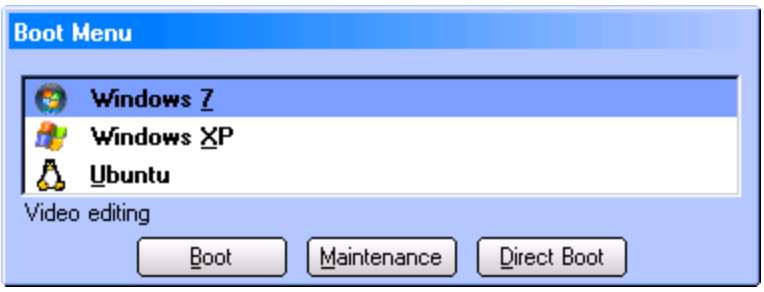
BootIt BM has the following two types of boot menus:

- The Normal Boot Menu displays the specific boot items configured for it as described in *The Normal Boot Menu* (below).
- The Direct Boot Menu displays all enabled partitions—those that haven't been disabled—as described in *The Direct Boot Menu* on page 34.

You'll use the Normal Boot Menu most frequently, especially if you have enabled support for more than four primary partitions and want more than the boot partition visible.

The Normal Boot Menu

The Normal Boot Menu (Boot Menu) displays the specific boot items configured for it. Click to select an item or use the keyboard arrow keys.



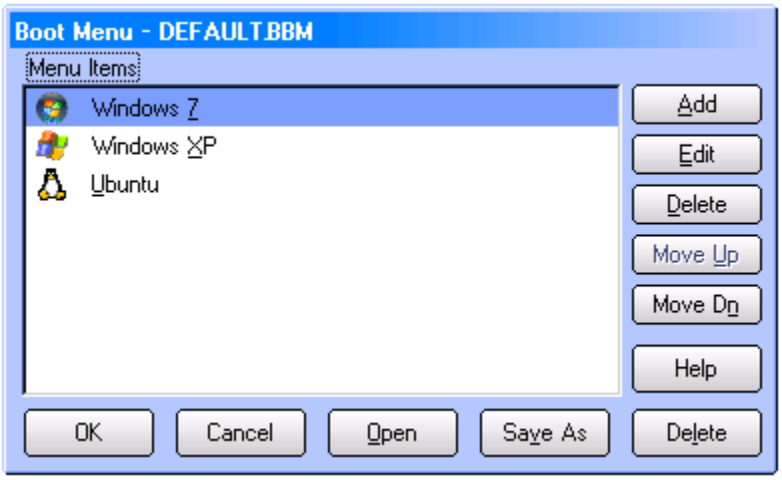
You can boot an item using this menu in the following ways:

- Double click the item.
- Select the item, and then press Enter.
- Select the item, and then click Boot.
- Press the associated shortcut key for the item (such as **X** for Windows XP).
- Select the item, press and hold **Alt** and then press **N** (**Alt+N**) to perform a one-time Boot Next Device, **Alt+S** to perform a one-time BIOS Sequence, or **Alt+F** to perform a one-time Floppy boot. These options requires the maintenance password, if set. These one-time hotkeys can be used in lieu of the one-time options setup in the boot item as described below.
- Select the item, and then press and hold down the *left* **Shift** key while selecting Boot to perform a *simulated boot* that only updates the partition table. You'll hear a beep when performing this option (if the computer's internal speakers work). This option is useful when the MBR needs loaded, but booting into the OS is not required.

You can position the Boot Menu window to an alternate location by dragging it with the mouse. To save the position press **F11**. To return the menu to the default location (center of screen) press **Shift-F11**.

Set up the Normal Boot Menu

1. On the Edit menu, click Boot Menu. Alternatively, from the main desktop screen, click Boot Edit.

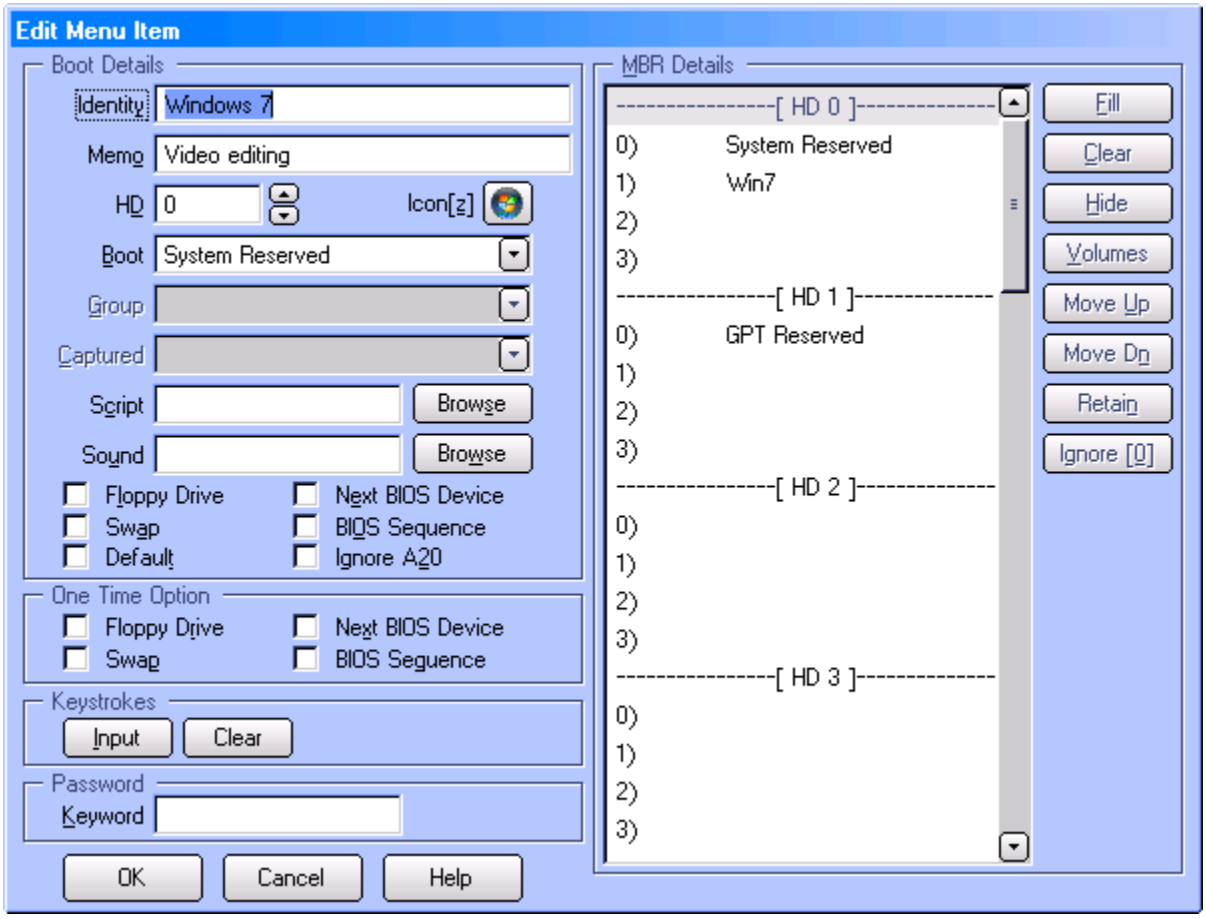


2. In the Boot Menu dialog box, do any of the following:
   - To rearrange the order of the items, select an item, and then click Move Up or Move Dn as appropriate.
   - To delete an item, select the item that you want to delete, and then click Delete.

- To create a menu item, click Add, and then refer to the following screen capture and *Add or edit a normal boot menu item*.
- To edit a menu item, select the item that you want to modify, click Edit, and then refer to the following screen capture and *Add or edit a normal boot menu item*.
- To save the current Boot Menu to a file, click the Save As button. The saved menu can then be used when setting up users.
- To load a previously saved Boot Menu, click the Open button.

Add or edit a normal boot menu item

1. On the Edit menu, click Boot Menu. Alternatively, from the main desktop screen, click Boot Edit.
2. In the Boot Menu dialog box (as displayed in *The Boot Menu* on page 29), do one of the following:
   - To add a menu item, click Add.
   - To edit a menu item, select the menu item and then click Edit.
3. The Add Menu Item or Edit Menu Item dialog box will be displayed (depending on your selection in Step 2). The options for both are the same and are detailed below.



The Menu Item dialog contains all the settings for the menu item. These settings are categorized below by section for easy reference.

Boot Details

Identity	Type the name to be displayed in the boot menu. You can type & before any letter in the name that you want to become a shortcut key on the Boot Menu.
Memo	Enter descriptive text for the menu item. This text will be displayed on the boot menu.
HD	Click the up or down arrows to enter the hard drive number (starting at zero) of the hard drive containing the partition or volume to boot. This should be set to the drive containing the booting partition for the operating system.
Icon	Select the desired icon to be displayed for this entry in the Boot Menu.
Boot	Select the name of the partition or volume to boot. This should be set to the booting partition for the operating system being booted by this menu item.
Group	Select the name of the group to use for Multi-OS partitions. See *Using the Multi-OS Feature* for more information.
Captured	Select the Captured MBR/LVM file to use, if any, for non Multi-OS partitions. This option only displays if captured MBR or LVM files exist. Logical Volume Manager (LVM) is used in OS/2. MBR/LVM files are rarely needed or used. If you need both an MBR and LVM file for a boot item, then use the same name for the captured MBR and LVM files. Files with the same base name are applied whether the MBR or LVM file is chosen.

Script	Enter the file name of the Script (.tbs or .run) to run when this item is booted by clicking Browse and choosing the desired script. When this menu item is selected to boot the script will run prior to the OS booting. The script can abort booting the OS by removing the ResumeB value from the Options section of the bootitbm.ini file located in the BootIt partition. An example TBS script is shown below. The script runs a validation and then waits five seconds before continuing to boot. Pressing ESC will abort the boot and return to the menu.
	
	`sub main()`
	`  exec("^"C:\IMAGE.EXE^" /v /f:b2@0x1:^"\Win7x64^"", 1)`
	`  cls()`
	`  printl("Script completed.")`
	`  printl("")`
	`  key = getkey("Press ESC within 5 seconds to return to the BootIt menu...",5)`
	`  if key=27 then`
	`  ext("set ini bootitbm.ini Options ResumeB")`
	`  end if`
	`end sub`

Sound	Enter the file name of the Sound (.snd) file to play when this item is booted by clicking Browse and then locating the desired sound file. For details on creating a sound file, see *Creating and Using Sound*.
Floppy Drive	Select to boot from a floppy disk. The selected boot partition (Boot) will be the active partition.
Next BIOS Device	Select to boot from the next BIOS device. For example, if the BIOS is set to boot the hard drive and then the DVD drive, using this option will boot the

	DVD drive.
Swap	Select to enable swapping when booting this item. The selected hard drive (HD) will be swapped into the HD0 position when booted.
BIOS Sequence	Select to boot the system devices in the same order set up in the BIOS. The computer will boot as if the system is restarting.
Default	Select to designate the menu item that you are adding or editing to be the default menu item (the one that is always selected to boot on the next reboot).
Ignore A20	Select when an operating system won't boot properly. This is primarily used with older operating systems and for the boot function to operate the same as versions of BootIt NG prior to 1.87 did.

One Time Option

One Time options are automatically cleared after being used. These options perform identically to their Boot Details counterparts and allow you to easily boot to a different device and automatically return to normal booting on the next boot.

Floppy Drive	Select to boot from a floppy disk. The selected boot partition (Boot) will be the active partition.
Next BIOS Device	Select to boot from the next BIOS device. For example, if the BIOS is set to boot the hard drive and then the DVD drive, using this option will boot the DVD drive.
Swap	Select to enable swapping when booting this item. The selected hard drive (HD) will be swapped into the HD0 position when booted.
BIOS Sequence	Select to boot the system devices in the same order set up in the BIOS. The computer will boot as if the system is restarting.

Keystrokes

Input	Click and then type up to 15 keystrokes to be played back when booting this item. The keystrokes are buffered and carried forward as if you had typed them yourself. For Windows, note that the keystrokes may not carry past the boot loader.
Clear	Click to remove any saved keystrokes previously entered.

Password

Keyword	Enter a password/keyword that will be required to boot this item. Note that a password protected boot item cannot be booted with BootNow.

MBR Details

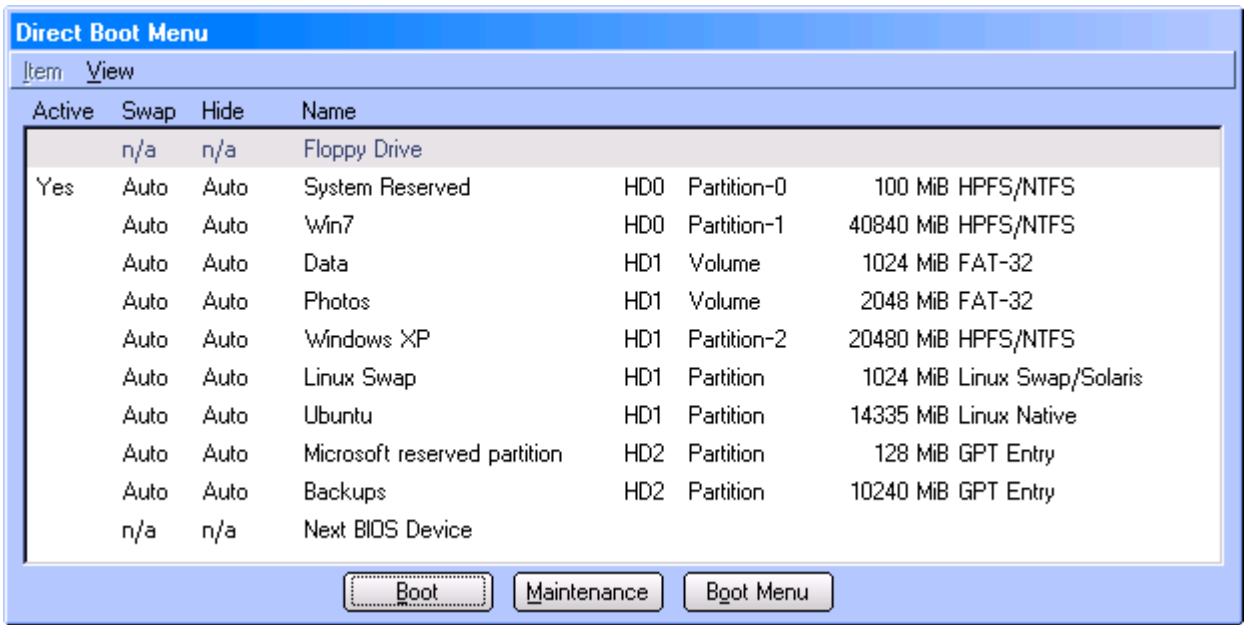
In this section, each entry represents an entry in the standard MBR for a given hard drive. When this boot item is booted, the MBR of each drive will be updated to reflect the view you see here. To edit or adjust the entries, select a partition or blank entry, and then do any of the following:

Fill	Select a blank space (or a partition to be replaced) and then click Fill (or press **Ins**). If the Limit Primaries setting is enabled, then all partitions are already listed. At minimum, the boot partition for the operating system must be loaded to the MBR (as seen in the illustration toward the end of *BootIt Bare Metal Overview for First-time Users* on page 26).
Clear	Removes the selected partition from the MBR. This option is disabled if the Limit Primaries setting is enabled or the drive is not configured as EMBR.
Hide / Unhide	If the selected partition is currently unhidden (default), the partition is marked as hidden. If the selected partition is currently hidden, the partition is set as unhidden. The **Spacebar** can also be used to toggle hidden status. This option cannot be used on GPT drives.
Volumes	To hide individual volumes (logical partitions), select an extended partition and then click Volumes. If using DOS through Windows 98, be careful not to hide the last FAT/FAT32 volume as these operating systems have a bug that causes problems mounting partitions if the last volume of an extended partition is not a recognized FAT or FAT32 partition.
Move Up	Moves the selected partition or volume one slot up in the partition table. This option cannot be used on GPT drives.
Move Dn	Moves the selected partition or volume one slot down in the partition table. This option cannot be used on GPT drives.
Retain	This setting applies to drives only. The selected drive will retain the items in the MBR at the time of booting instead of using the items in the MBR Details section of the boot item. This special use option is of value to those swapping in EMBR enabled drives with Limited Primaries disabled.
Ignore	This setting applies to drives only. The selected drive will be ignored by BootIt BM. This is necessary when using a non-standard drive. An example would be a drive that is fully encrypted (including the MBR) and appears to have no valid partition table. If this option is not used, when BootIt BM checks the drive it may write a valid empty partition table to the drive, corrupting the encrypted data.

Valid options for drive and partition items can also be accessed by right-clicking the item and selecting the desired option from the pop-up menu.

The Direct Boot Menu

The Direct Boot Menu dialog box displays all enabled partitions—those that haven't been disabled. From the Direct Boot Menu, just double-click an entry to boot from it. The Active, Swap, and Hide columns of the menu indicate the setting for that partition or volume (unless partitions are not limited, in which case booting from the Direct Boot Menu makes only the partition being booted visible; all other partitions will be hidden).



Boot an item using the Direct Boot Menu

1. If the Direct Boot Menu is not configured as the default menu, then, on the Normal Boot Menu, click Direct Boot.
2. In the Direct Boot Menu dialog box (as seen in *The Direct Boot Menu*), configure the settings for each partition as desired. These settings are categorized below for easy reference.
3. Click an entry to select it and then click Boot. Alternatively, you can double-click an entry to boot from it. To perform a *Simulated Boot* for the purpose of setting up the MBR without actually booting the operating system, hold down the *left* Shift key while you click the Boot button.

Active Column

The Active column indicates whether or not the partition or volume is active (Yes). To set the active partition, select an item and then press the **Spacebar** or select the Item menu and then the Set Active option.

Usually, the active primary partition on HD0 is drive C. When installing a new operating system to a new partition, verify that the installation partition is active or the installation may go to some other partition marked active. You can set a partition active only if it is in the MBR as indicated by the -# that follows the Partition type column. For example, in the screenshot you see Win7 has HD0 Partition-1 which means that partition is in the second partition table entry in the MBR.

Swap Column

The Swap column indicates whether or not the hard drive being booted will be swapped with HD0. To change swap options, select the item and then press **F4** to cycle though the options for this column. Alternatively, on the Item | Swapping menu, click one of the following options:

Auto	BootIt BM determines if the drive needs to be swapped.
On	Drive will be swapped.

Off	Drive will not be swapped.
Once	Drive will be swapped when booted and will then reset to Off.

For example, if you boot a partition on HD1 (the second hard drive) with the swap option On, BootIt BM swaps that hard drive with HD0 so that HD1 is now HD0 and (the real) HD0 is now HD1.

Keep in mind that, because swapping is done at the BIOS level, once an operating system boots into protected mode, it may ignore the BIOS and, in effect, undo the swap.

Hide Column

The Hide column indicates how and which partitions will be hidden. To change hide options, select the item and then each press **F6** to cycle though the options for this column. Alternatively, on the Item | Hiding menu, click one of the following options:

Auto	BootIt BM determine which partitions to automatically hide.
All	All partitions are hidden except the boot partition.
None	None of the existing partitions are hidden.
Some	Hides all but one primary partition per hard drive.
As-Is	This option does no hiding or unhiding of partitions or volumes.

When Hide is set to anything other than As-Is, volumes are always unhidden.

Item Menu

The Item menu commands are listed below:

Set Active	Sets the selected partition active. You can set a partition active only if it is in the MBR.
Hide/Unhide	Toggles the status of the selected partition between hidden and unhidden.
Hiding >>>	*See Swap Column above.*
Swapping >>>	*See Hide Column above.*
Set/Clear Default	Marks the selected partition as the default. An asterisk appears before the Name in the list.
Enable/Disable	Toggles the status of the selected partition or volume between *enabled* and *disabled*. The View menu controls which partitions are displayed. If only enabled partitions are being displayed, disabling a partition will remove it from the list.
Rename	Allows you to rename a partition or volume. **F10** can also be pressed to rename.
Help	Displays help information for the Direct Boot Menu.

View Menu

The View menu controls which partitions are visible in the Direct Boot Menu dialog.

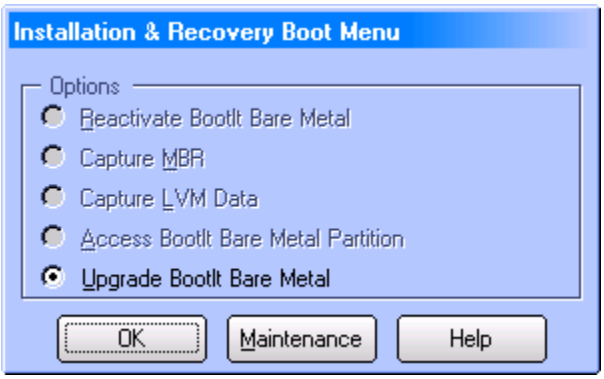
All	All partitions and volumes are displayed.
Enabled	Only enabled partitions and volumes are displayed.

Note

- When booting from the floppy disk or next BIOS device, the Swap and Hide options are determined by the active partition.
- To use the Next BIOS Device option to boot from your CD/DVD drive, set your BIOS boot sequence to have the CD/DVD drive immediately after the hard drive.
- When you boot an item via Direct Boot and you are not limiting primaries, only the selected primary partition will be visible in the MBR.

The Installation & Recovery Boot Menu

The Installation & Recovery Boot Menu dialog box appears when you boot with the BootIt BM boot media after BootIt BM has been installed (it is displayed if booting a CD/DVD, USB flash drive, or floppy disk).



The following options are available:

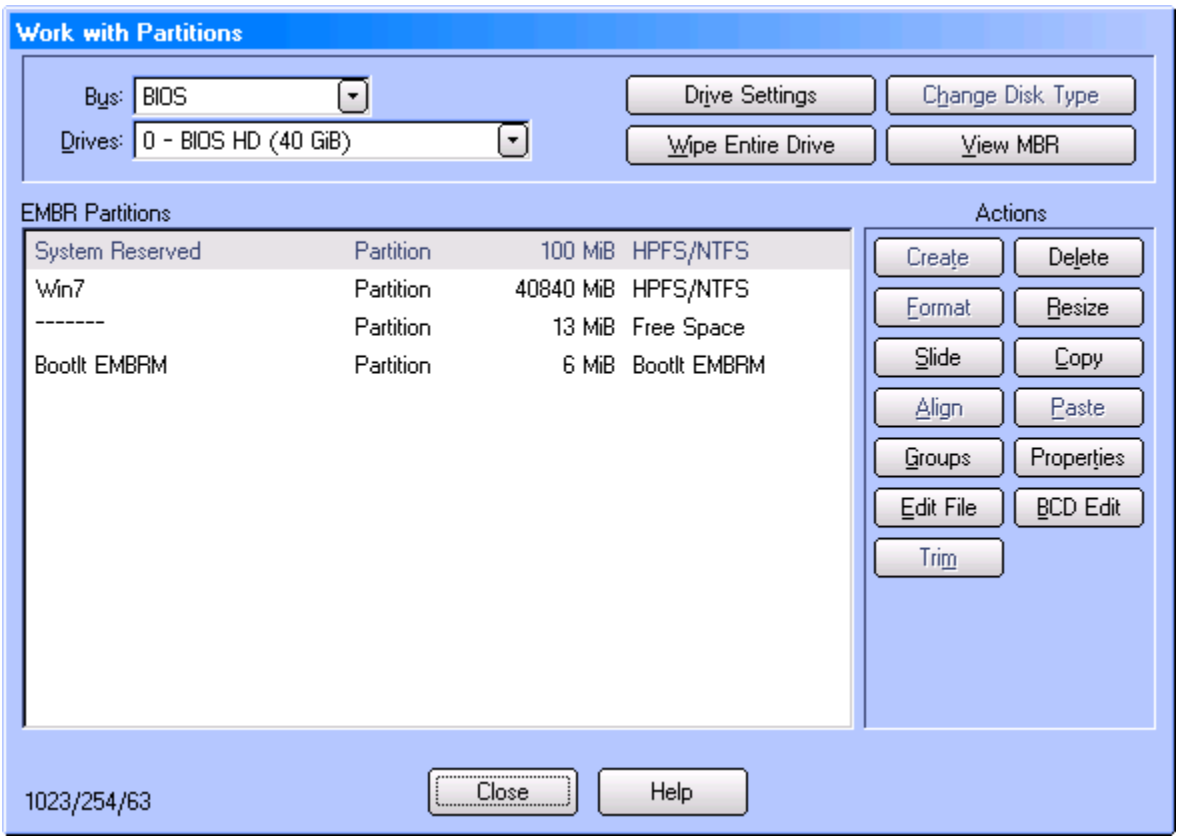
Reactivate BootIt Bare Metal	Select to reactivate BootIt BM if it was deactivated after installing a new operating system (such as Windows) or by using the Deactivate option on the uninstall dialog.
Capture MBR	Select if you have a special operating system or need to use a special MBR. This way, you can capture the MBR before you reactive BootIt BM. Once captured, you can use it in the boot items that you create for the Normal Boot Menu as described on page 29. Most users will not have a need to capture the MBR.
Capture LVM Data	Select if you have a special need to use this option. Once captured, you

	can use it in the boot items that you create for the Normal Boot Menu as described on page 29. Logical Volume Manager (LVM) is used in OS/2. Most users will not have a need to capture LVM data.
Access BootIt Bare Metal Partition	Select to mount and change the current drive to be the BootIt BM partition on the hard drive. This lets you use files or other items that may exist only on the hard drive partition. You can still access the hard drive partition if the partition is deleted. If you move the EMBRM partition after installation, you should reinstall BootIt BM to update the pointers on the installation disk. CD/DVD users will not get this option since you cannot write to a CD/DVD.
Upgrade BootIt Bare Metal	Select to start the BootIt BM setup to upgrade the existing installation.

Working with Partitions

You can gain access to the Work with Partitions dialog box in two ways:

- On the desktop, click Partition Work.
- On the Edit menu, click Partitions.



Selecting a Drive

The drive is selected using the Drives drop-down box. The list shown may have generic drive names or it may include model numbers, depending on the access method in use and the details BootIt BM is able to obtain.

Use the Bus option to control the access method and select which type of drives are displayed. The list of available bus types will not include those disabled in BootIt BM Settings. The following types are supported:

BIOS	Drives are accessed using the system BIOS. Please note that any problems or limitations inherent to the system BIOS will apply.
BIOS (direct)	Attempts to access the drives directly, bypassing the BIOS. This can sometimes be helpful in cases where performance with the BIOS option is very poor. If access fails, BootIt BM will fall back to BIOS access.
USB	Lists drives attached via USB. Drives are accessed directly, bypassing the BIOS.
IEEE1394	Lists drives attached via IEEE1394 (FireWire). Drives are accessed directly, bypassing the BIOS.

Below the Drives drop-down box, the Disk Type (MBR, EMBR, and GPT) is displayed, followed by the partitions and Free Space on the drive. The C H S values are displayed in the lower-left of the dialog.

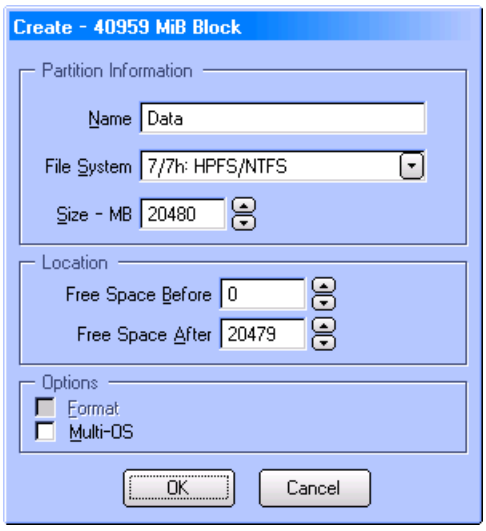
If errors are detected in the partition structures or layout, * Errors Exist * will be displayed above the top-right corner of the partitions box. The affected partitions will be marked with an E. Note that only one error is displayed at a time. Once the error is corrected, the next error (if any) will be displayed.

Partition Operations

The following sections detail the supported partition operations. Please note that there is an inherent risk in making partitioning changes. It is recommended to create a backup image if the data on the drive is of value.

Create a partition or volume

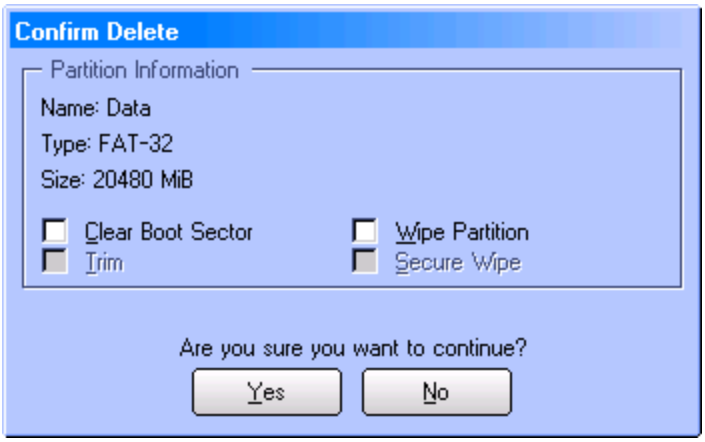
1. On the desktop, click Partition Work.
2. In the Partitions list, select a Free Space entry and then click Create under Actions.
3. In the Create dialog box under Partition Information, type the Name of the partition that you want to create. Note that the name will not be saved unless the partition is formatted or the drive type is EMBR.
4. Select the appropriate File System from the drop-down list. If the desired file system does not appear in the list, type it in decimal (or hex by starting with 0x [zero x] or octal starting with a 0 [zero]).
5. Increase or decrease the Size of the new partition (in MB) using the keyboard or up or down arrows, respectively.



6. Optional:
   - To allow a specific amount of free space either before or after the new partition, enter the values using the Free Space Before and Free Space After controls. The default is for the partition to start at the beginning of the free space.
   - Under Options, select the Format checkbox if you want the partition formatted after it is created. If the Format checkbox is grayed out and unavailable, formatting is not supported for the selected file system.
   - If you want the option of having multiple operating systems boot from the new partition, select the Multi-OS checkbox. This does not mean that you are going to have multiple operating systems on the system itself. For more information on the Multi-OS option, please refer to *Using the Multi-OS Feature*.
7. Click OK.
8. If the File System specified for the new partition is FAT, FAT32 or NTFS and the Format option is selected, you can suggest a cluster size. See *Format a partition or volume* for details.
9. The new partition is displayed in the list of partitions.

Delete a partition or volume

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition or volume that you want to delete and then click Delete under Actions.
3. In the Confirm Delete dialog box, you may complete these optional tasks (that *cannot* be undeleted or reversed):
   - To clear several boot sectors at the beginning of the partition, select the Clear Boot Sector checkbox.
     Caution: *The partition will not be able to be undeleted if this option is used.*



   - To clear all sectors in the partition with zeros, select the Wipe Partition checkbox. To use one of the standard wipe patterns or specify one of your own, select the Secure Wipe checkbox (see *Wipe Entire Drive* on page 52 for details).
   - If the Bus option is set to BIOS (direct) and the drive supports TRIM you can select the Trim option. TRIM will be applied after all other specified options (e.g. wipe). Note that direct access to the drive is required. If BIOS (direct) is selected but reverts to BIOS mode you won't be able to use the Trim option.
4. After reviewing the Partition Information to verify that you are about to delete the correct partition, click Yes.
5. The partition is removed from the drive and the list of partitions.

Undelete a partition or volume

1. On the desktop, click Partition Work.

2. In the Partitions list, select the Free Space entry that you want to undelete and then click Undelete under Actions.
3. In the Undelete dialog box that appears, click OK to recover missing FAT, HPFS, NTFS, Ext2fs, ReiserFS, and Extended partitions or volumes.

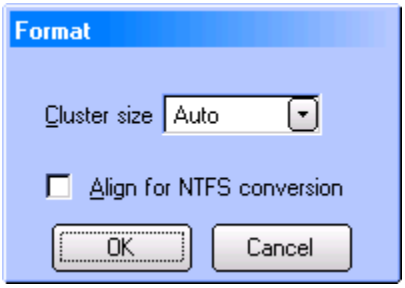
Note

If the partition or volume recovered is not correct, select it in the Partition list, click Delete, select the Clear Boot Sector checkbox, click Yes, and then repeat Steps 2 and 3.

Format a partition or volume

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition or volume that you want to format, and then click Format under Actions. If the Format button is grayed out and unavailable, formatting is not supported for the selected partition's file system.
3. For FAT, FAT32, and NTFS partitions, you can suggest a cluster size. However, BootIt BM determines the final size necessary to keep the partition valid.

   For FAT and FAT32, you can also select the Align for NTFS conversion option to have the partition aligned optimally when later converted to the NTFS file system.



4. Click OK. The partition is formatted, scanned for errors (FAT/FAT32 only – scan can be canceled), and the Format Summary dialog is displayed.

Resize a partition or volume

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition or volume that you want to resize, and then click Resize under Actions.
3. In the Resize dialog box, click OK to error check the file system.

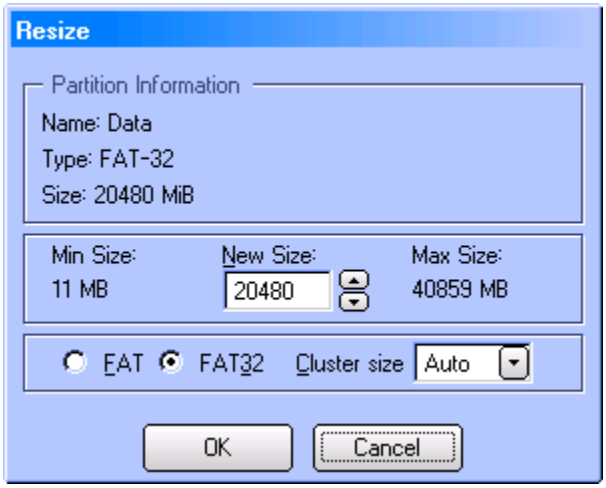
   The error-checking process can take a long time. If the hard disk indicator light continues flickering, the error check is progressing.

   When the error check is complete, in the Resize dialog box you may review the Partition Information (such as Name, Type, and Size) to verify that you are resizing the correct partition.

4. Review the Min Size and Max Size, then increase or decrease the New Size of the selected partition using the up or down arrows, respectively. The size can also be typed in.
5. Click OK, and then (if you have already backed up your hard drive) click Continue.

   The Resize status bar indicates progress. This process can take a long time when BootIt BM needs to move your existing data in order to resize the partition.

   BootIt BM checks for errors once again, after which the Resize dialog box displays a message that the resize is complete.



6. Click Close.

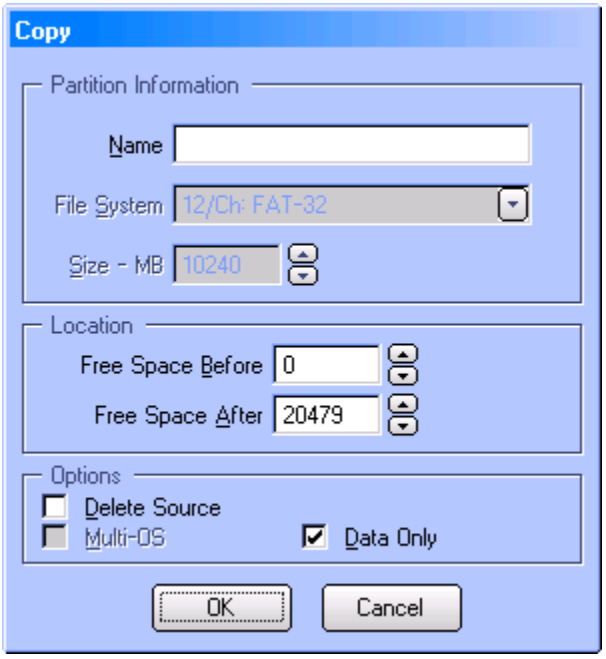
Tip

- To expand a partition, the Free Space block must follow and be adjacent to the partition to be expanded. Use the Slide feature, if necessary (see *Slide a partition or volume* on page 43).
- If BootIt BM displays a message that it cannot use the size or that free space has run out, select a smaller size first and then try the final size. In some cases, even just increasing the size by 20 to 50 MB can allow the final resize to succeed.
- You can suggest a cluster size for FAT/FAT32. However, BootIt BM determines the final size necessary to keep the partition valid.
- To convert to or from a FAT/FAT32 file system, select the desired file systems radio button.

Copy a partition or volume

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition or volume that you want to copy and then click Copy under Actions.

   At the bottom of the Work with Partitions window, BootIt BM displays the Paste Pending for Copy message.
3. In the Partitions list, click the Free Space entry where you want to paste the copied partition information and then click Paste under Actions. The Copy dialog box is displayed.



4. Enter the name for the copied partition in the Name box.
5. Optional:
   - Under Options, if copying the partition to the same drive and you already have four primary partitions (and Limit Primaries is enabled), you will need to *move* the partition by selecting the Delete Source checkbox.

- To allow a specific amount of free space either before or after the copied partition, enter the values using the Free Space Before and Free Space After controls. The default is for the partition to start at the beginning of the free space.
- To copy just the used areas of the file system rather than copying every sector (including unused sectors) and thereby improve speed (unless the partition is almost full and has a lot of fragmentation), select the Data Only checkbox.

6. Click OK.

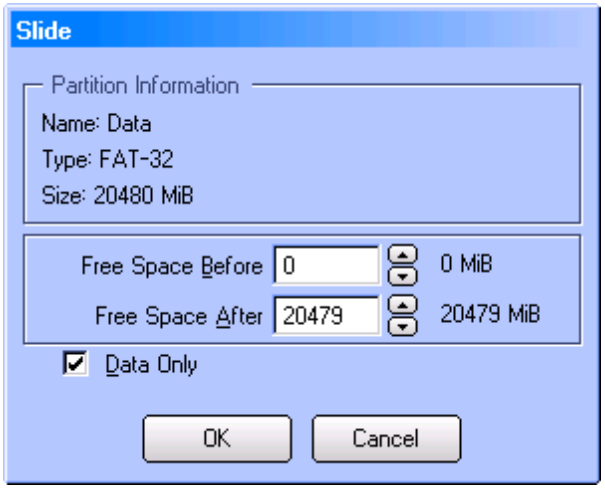
Note

Partitions can also be copied using Image for DOS (accessible from the BootIt BM desktop if installed with BootIt BM), which provides more options for the procedure (e.g. data verification). For details refer to the Image for DOS manual.

Slide a partition or volume

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition that you want to slide (or move in an adjacent Free Space), and then click Slide under Actions.

   In the Slide dialog box, review the Partition Information to verify that you are about to slide the correct partition.
3. Click the up or down arrows to increase or decrease the megabytes of Free Space Before and Free Space After, as necessary. The values can also be entered directly, if desired.
4. Optional:
   - To move just the used areas of the file system rather than moving every sector (including unused sectors) and thereby improve speed (unless the partition is almost full and has a lot of fragmentation), select the Data Only checkbox.
5. Click OK.
6. A warning will be displayed. Click Continue to slide the partition or Cancel to abort.
7. When the operation has completed, click Close.



Align a FAT/FAT32 partition

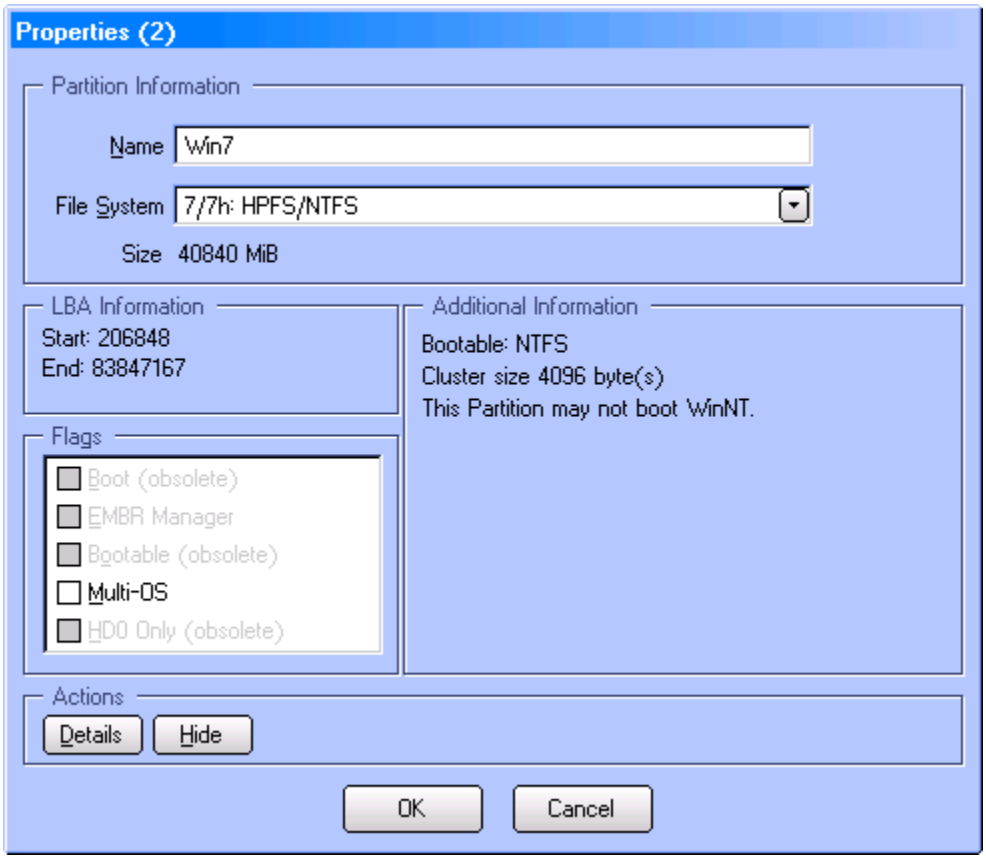
The align operation is used to align the contents of a FAT/FAT32 partition so that conversion to NTFS results in cluster sizes that are more efficient.

1. On the desktop, click Partition Work.
2. In the Partitions list, select the FAT/FAT32 partition that you want to align and then click Align under Actions.
3. The Align information dialog will be displayed. Click Continue.

View partition properties

1. On the desktop, click Partition Work.

2. In the Partitions list, select the partition for which you want to see the properties and then click Properties under Actions.



Note that the process of viewing partition properties also checks for some common partition errors. If any errors are found, you are either prompted with an option to fix them or a warning is displayed in the Properties dialog box. The partition GUID, if any, is displayed in the dialog title.

3. The partition's properties are displayed, including the Name, File System type, Size, and LBA starting and ending sectors. The Flags section displays the partition's attributes and their current status. The attributes available vary depending on the disk type (MBR, EMBR, GPT). The Additional Information section includes other details such as the Bootable file system , Cluster size, and any other pertinent information.
4. Optional:
   - Enter a new Name for the partition.
   - The File System type can be changed. Note that this is an advanced option and can cause data loss or corruption if used incorrectly.
   - Click Details to display the free and used space on the partition.
   - For partitions that support a hidden type, click Hide to toggle the partition to the hidden state. Click Unhide to return to the normal state.
   - Under Flags, if the disk type is EMBR and you want the option of having multiple operating systems boot from the selected partition, select the Multi-OS checkbox. This option is not needed if you are going to have each operating system in its own dedicated bootable partition.

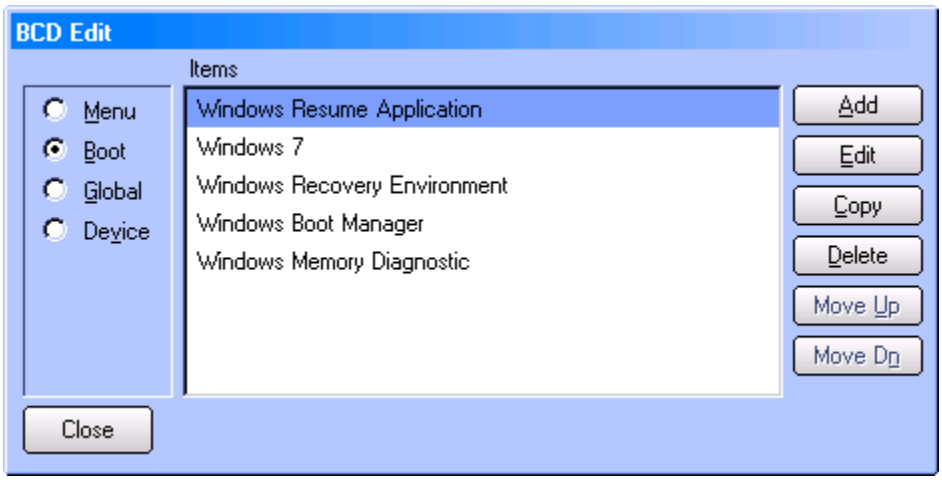
- **Warning to Windows 8 and Windows 10 Users**
  If Windows 8 or Windows 10 is installed on the partition and **Fast startup** (Hibernate on Shutdown) is enabled, the Disable Fast Start button will be available. Fast startup must be disabled to prevent corruption of your partitions and data. Click the button to disable Fast startup and remove the current hibernated state. You will be prompted to confirm this action.
- *Advanced option:* If the **left Shift** key is held down when the Properties button is clicked, it will be possible to edit the LBA ending sector value. This can be helpful when the partition was not initialized or created correctly and requires manual adjustment.

5. Click OK to close the Properties dialog box and save any changes, or Cancel to close and retain the current settings.

BCD Edit

This option allows you to easily edit the Windows BCD store used for booting newer versions of Windows (including Windows Vista and Windows 7). An example would be updating the BCD file to reference the correct partitions when the stored information is no longer valid and causes Windows to be unable to boot successfully.

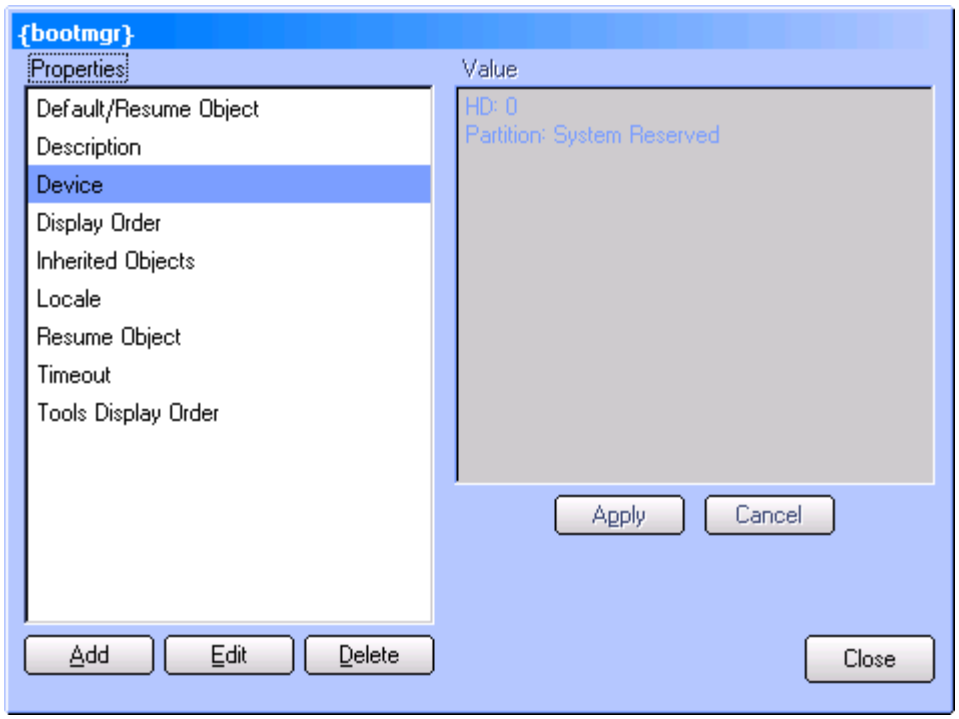
1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition containing the BCD file that requires editing and then click BCD Edit under Actions.



3. The categories (i.e. Menu, Boot, Global, Device) are listed on the left side of the dialog box, with the items for the selected category displayed in the center. Items can be manipulated using the buttons on the right.

   Most repairs only require making changes to few items. For example, if it were necessary to repair the BCD file to reference the Windows 7 System Reserved booting partition and the Windows 7 partition, you would proceed as follows:

   - Select Boot.
   - Select the Windows Boot Manager item.
   - Click Edit.



- The {bootmgr} properties are displayed. Select the Device property and click Edit.



- Use the provided drop-down boxes to select the correct hard drive and partition. Click OK and Close to save the changes and return to the BCD Edit dialog box.
- Select the Windows 7 item and click Edit.
- Select the Device property, click Edit, select the correct drive and partition (the Windows 7 partition, in this case), and then click OK.
- Select the OS Device property, click Edit, select the correct drive and partition (the Windows 7 partition, in this case), and then click OK.
- Click Close to return to the BCD Edit dialog box.

4. When finished making changes, click Close.

Editing a file

BootIt BM allows editing text files (up to 64K in size) on partitions using supported file systems. Using this option, it is easy to make corrections or modifications to files that may otherwise be inaccessible. An example would be editing the Windows XP *boot.ini* file when the partition won't boot. Another example is editing the BootIt BM TBOSBOOT.STR file to change a startup parameter (a change that may otherwise require reinstalling BootIt BM).

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition containing the text file that requires editing and then click Edit File under Actions.
3. Using the Open dialog box, browse to the file you wish to edit and then click OK.
4. When finished, click OK to save the file.

Additionally, to quickly access a file in the BootIt BM partition you can click the Text Editor icon on the desktop (or press **X**) and then click the Open button. Among other things, this allows you to easily create and edit batch/script files. Batch/script files (.BAT, .CMD, .RUN, and .TBS) can be run by clicking the Run icon on the desktop (or by selecting Run from the Utilities menu) and then selecting the file.

Note

If the file opened for editing is too large or a binary (non-text) file is opened, the file will be truncated and a message will be displayed. If this file is then saved, the truncated data will be lost.

Applying TRIM

The TRIM operation is used to notify the SSD drive of unused sectors within the selected partition area that it can use for itself.

1. On the desktop, click Partition Work.
2. Use the Bus drop-down to select BIOS (direct).
3. In the Partitions list, select the partition or free space to which you wish to apply TRIM, then click Trim under Actions.
4. Click Continue on the notice displayed and the TRIM procedure will be run (progress will be displayed). Click Close when finished.

Note

Direct access to the drive is required. If BIOS (direct) is selected but reverts to BIOS mode you won't be able to use the TRIM option. Additionally, the drive must support TRIM.

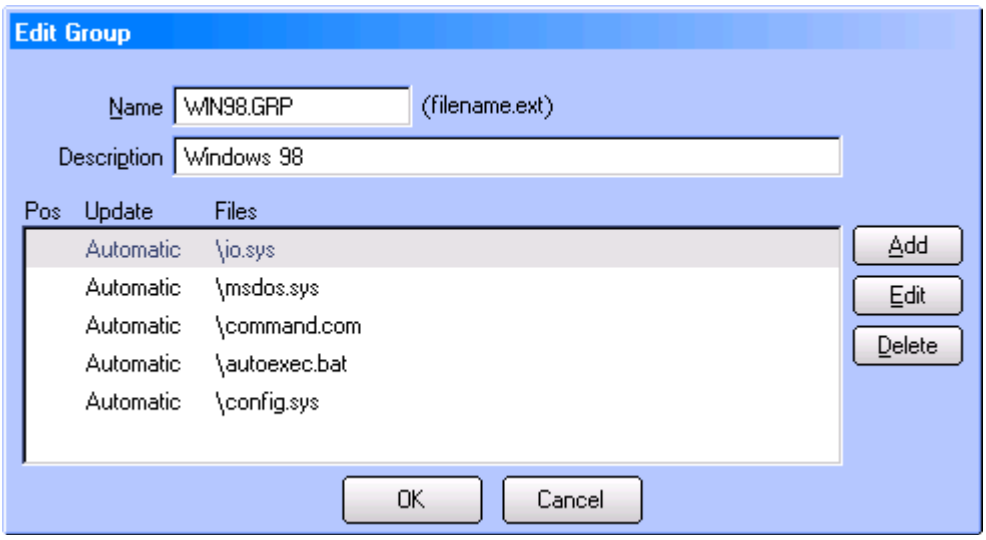
x

Working with Partition Groups

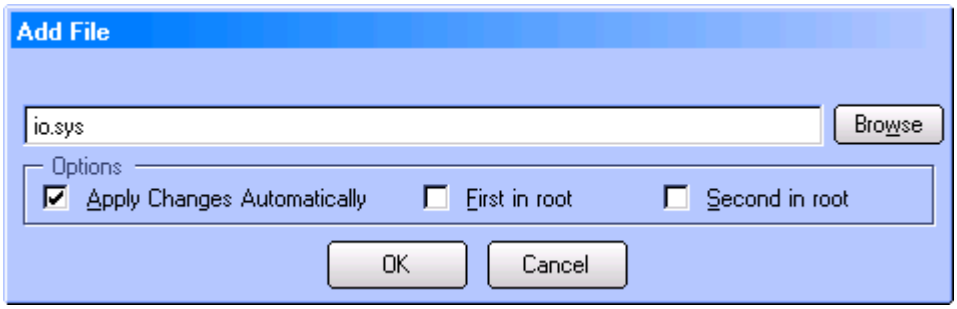
Partition Groups are used in conjunction with the Multi-OS feature allowing certain files to be automatically replaced on Multi-OS setup. For more information, see *Using the Multi-OS Feature*.

Add or Edit a partition group

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition to which you want to add or edit a group, then click Groups under Actions. A notice will be displayed if the Multi-OS option is not enabled for the selected partition.
3. In the Groups dialog box, click Add to create a new group or Edit to edit the selected group.
4. In the next dialog box (either Add Group or Edit Group), type the Name of the group and then enter a Description.



5. Click Add to add a file or Edit to modify the selected file item. In the Add File or Edit File dialog box, type the full path name using the DOS 8.3 naming convention (or click Browse) for each file that should be part of the group.



Optional:

- If you want the file in the group to be updated automatically if it is changed on the partition, select the Apply Changes Automatically checkbox. If this option is not checked, you will be notified whenever the file has been altered and given an option on what to do.
- If the file needs to be in position 1 (see *Setting Up Multi-OS Groups on Different Operating Systems* on page 71 for more details), select the First in root checkbox; likewise, select the Second in root checkbox if the file needs to be in position 2. Do not select either of these checkboxes unless actually required

6. Click Delete to remove the selected file from the group.
7. Click OK.
8. Complete Steps 5 to 7 for as many files as you want to add or edit, then click OK.
9. Complete Steps 3 to 8 for as many groups as you want to add or edit, then click Close.

Delete a partition group

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition from which you want to delete a group.
3. Under Actions, click Groups.
4. In the Groups dialog box, select the name of the group that you want to delete and then click Delete.

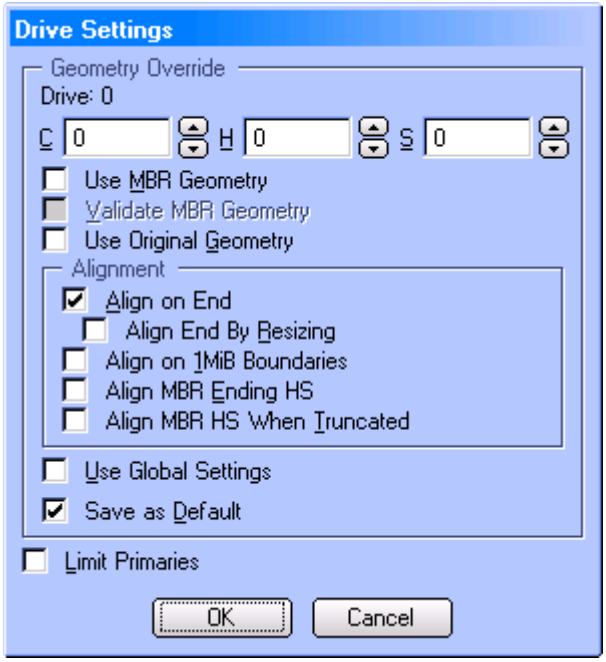
5. Click Yes to confirm the deletion.
6. Complete Steps 4 and 5 for as many groups as you want to delete, then click Close.

Copy a partition group

1. On the desktop, click Partition Work.
2. In the Partitions list, select the partition from which you want to copy a group.
3. Under Actions, click Groups.
4. In the Groups dialog box, select the name of the group that you want to copy and then click Copy.
5. In the Copy Group dialog box, enter the Name and Description for the new group and make any desired changes to the list of file. Click OK.
6. Click Close.

Drive Settings

These options are available for each drive, allowing you to apply Global Settings or custom settings on a per drive basis.



C H S

This option is helpful when you need to specify geometry values that differ from those assigned by the operating environment. For example, you use this option when you attach a hard drive from another machine to the USB port of another machine to restore the first machine's backup image.

Valid values:

C – Last Cylinder	0 to 1023
H – Last Head	0 to 254
S – Sectors per Track	1 to 63

Use MBR Geometry

Enable this option to prevent problems when a backup image of another

	system's drive is restored to a drive connected to a different system and drive will be put back into the original system. This option uses drive geometry based on the MBR entry of the first partition in the backup image file. For example, consider the following scenario: • A backup image of PC-A's hard drive was previously created using PC-A. • The drive in PC-A fails. A new drive is obtained to replace the failed drive. • The decision is made to use PC-B to perform the restore since it will process it much more quickly. • The new drive is connected to PC-B and the image is restored to it. • The new drive is then installed in PC-A, replacing the failed drive. Without this option enabled, the restoration would setup the partition on the new hard drive to boot properly for PC-B, which can sometimes (not always) be a problem when the hard drive is going back to PC-A. Using this option solves that problem. This option applies only when restoring a backup image. Default: Unselected
Validate MBR Geometry	The option is used to ensure that the geometry from the MBR on the original system is aligned to known standards before accepting it for use. It only applies when the Use MBR Geometry option is enabled. Note that you can only change the status of this option when the Use MBR Geometry option is enabled. If the validation fails, the geometry values used will be the same as if the option were disabled (Original or currently reported values). This option applies only when restoring a backup image. Default: Unselected and the control (checkbox) is disabled
Use Original Geometry	Enables the use of the drive geometry saved in the backup image that represents the geometry from the environment (Windows, Linux, or DOS) used to create the backup file. The saved drive geometry is used for the restored partition(s) instead of the geometry in use on the current system (which may differ). Note that this option is quite similar to the Use MBR Geometry option (both are attempting to solve the same problem). It is generally recommended to try the Use MBR Geometry option first, which obtains the geometry from the MBR of the backup image. This option applies only when restoring a backup image. Default: Unselected
Align on End	Use this option to ensure partitions are aligned at the end of a cylinder boundary.

	This option should be disabled when the Align on 1MiB Boundaries option is enabled. Default: Selected (if global option Align on 1MiB Boundaries is not selected) – otherwise, unselected *Advanced usage: If this option is enabled when Align on 1MiB Boundaries is enabled, partitions are aligned at a 1MiB boundary.*
Align End By Resizing	Align both the beginning and end of a partition by resizing. If the partition being aligned is unable to be resized, this option has no affect. When disabled, the end of the partition is aligned normally. This option has no affect if Align on End is disabled. *Advanced usage: If this option is enabled along with Align on End and Align on 1MiB Boundaries, both ends of the partition will be aligned to a 1MiB boundary.*
Align on 1MiB Boundaries	Align partitions based on 1MiB boundaries (drives with 512 byte sectors will be aligned on 2048 sectors; drives with 4096 byte sectors will be aligned on 256 sectors). When using this option, you will typically want to also set the following options: **Align on End** – Disable **Align MBR Ending HS** – Enable **Align MBR HS When Truncated** – Enable **C H S** – Clear any values (set to zero) Configured this way, the options enable partition alignment using the Windows Vista and Windows 7 standard (note that you can also use the global option Align on 1MiB Boundaries and enable the Use Global Settings option for the drive). Limitations: This only affects partitions being created, resized, slid, copied, etc. This option will not align existing partitions just by enabling it.
Align MBR Ending HS	Enable this option to force a partition's ending head and sector values in the MBR to match the current geometry (partition is created with the ending head and sectors set to the current geometry's max values). This option should be enabled when the Align on 1MiB Boundaries option is enabled or Align on End is disabled and the BIOS does not maintain LBA mode. Default: Unselected (if global option Align on 1MiB Boundaries is not selected) – otherwise, Selected
Align MBR HS When Truncated	When enabled, sets a restored partition's head and sector values in the MBR to match the current geometry when it is located outside the range of the current geometry. When disabled, the actual ending head and sector values are used. This option should be enabled when the Align on 1MiB Boundaries option is enabled. This option applies only when restoring a backup image.

	Default: Unselected (if global option Align on 1MiB Boundaries is not selected) – otherwise, Selected
Use Global Settings	Select this option to specify that the drive should use the Global Geometry and Alignment options. When selected, the displayed options are disabled and reflect the settings of the global options. Default: Selected
Save as Default	Select this option to apply these settings the drive. Otherwise, the changes are temporary for this session only (the original values will be used the next time BootIt BM boots). Default: Selected
Limit Primaries	This option provides an easy way to limit the number of primary partitions to four (when selected) or allow unlimited primary partitions (when unselected) for the selected drive. Note that changing the main Limit Primaries option in Settings will override this option. Default: Equals setting of main Limit Primaries option.

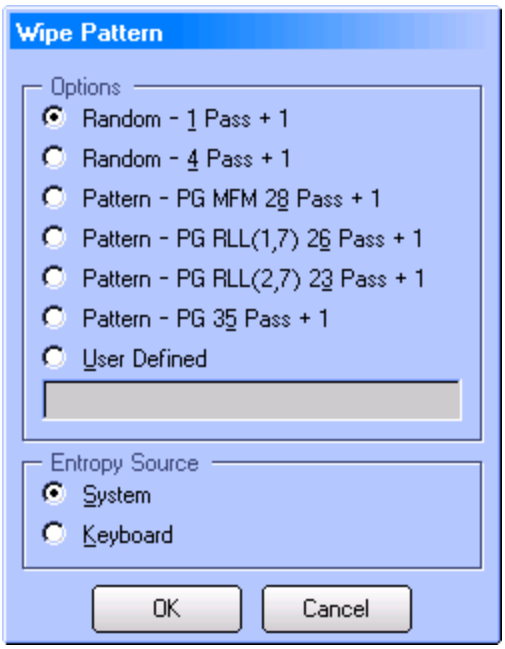
Wipe Entire Drive

When BootIt BM wipes a hard drive, it overwrites the entire contents of the hard drive, with the sole intent of making the original data unrecoverable by any practical means. BootIt BM provides a variety of options for wiping. Some of these options are designed to make the wipe operation proceed as quickly as possible; others are designed to take longer, but make it harder to recover the data that is overwritten. However, regardless of which wiping options you use, you should consider your data unrecoverable for your own purposes.

Wiping is not the same as formatting. Formatting a hard drive does not securely overwrite the previous content of the drive, often leaving data recoverable by special means. Rather, the only intent of formatting a drive is to prepare it for use by a particular file system.

Generally, the Random – 1 Pass + 1 wipe option should be sufficient for making the overwritten contents of the hard drive unrecoverable by software, while the Random – 4 Pass + 1 option may provide a higher level of security.

When using BootIt BM, the efficacy of the System entropy source option will vary by system. However, the Keyboard entropy source option should always provide a good source of entropy for random data generation.



After clicking the Wipe Entire Drive button, click the Yes button on the warning message to proceed.

The following wipe patterns are available for use:

Random – 1 Pass + 1	Overwrites with 1 pass of strong random data, followed by 1 pass of zeros.
Random – 4 Pass + 1	Overwrites with 4 passes of strong random data, followed by 1 pass of zeros.
Pattern – PG MFM 28 Pass + 1	Overwrites a total of 29 times, including specific patterns for MFM encoding: • 4 alternating passes of strong random data. • 20 passes using data designed specifically for MFM-encoded drives. • 4 alternating passes of strong random data. • 1 pass of zeros.
Pattern – PG RLL(1,7) 26 Pass + 1	Overwrites a total of 27 times, including specific patterns for RLL(1,7) encoding: • 4 alternating passes of strong random data. • 18 passes using data designed specifically for RLL(1,7)-encoded drives. • 4 alternating passes of strong random data. • 1 pass of zeros.
Pattern – PG RLL(2,7) 23 Pass + 1	Overwrites a total of 24 times, including specific patterns for RLL(2,7) encoding: • 4 alternating passes of strong random data. • 15 passes using data designed specifically for RLL(2,7)-encoded drives. • 4 alternating passes of strong random data. • 1 pass of zeros.

Pattern – PG 35 Pass + 1	Overwrites a total of 36 times, including specific patterns for MFM, RLL(1,7), and RLL(2,7) encoding: • 4 alternating passes of strong random data. • 27 passes using a variety of patterns designed specifically for RLL(1,7)-, RLL(2,7)-, and MFM encoded drives. • 4 alternating passes of strong random data. • 1 pass of zeros.
Hardware	Uses the Enhanced Secure Erase feature of the drive. This option is only shown when using the BIOS (direct) bus option, the hard drive device name shown is the make/model (instead of the generic BIOS name), the drive supports enhanced secure erase, and the drives secure erase feature hasn't been disabled by the BIOS (called frozen mode).
User Defined	Specify the wipe pattern to use by entering the desired byte value(s). Multi-byte patterns can be specified by using the & character. To have multiple passes, separate the values with a space. Hexadecimal, octal, and decimal numbers can be used. Precede hexadecimal numbers with 0x (0x01, 0x0A, 0xA3, etc.), octal numbers with 0 (01, 012, 0243, etc.). Enter decimal numbers (1, 10, 163, etc.) as normal. To specify random repeating data, use the R character. For random non-repeating data, use the N character. For super-random non-repeating data (continual stir with noise), use the S character. Note: You cannot use any of the random number characters (R, N, S) in a multi-byte pattern. To validate the prior write pass, use the V character. Note: A super-random pass (S) can't be validated. To specify a number to repeat for the remainder of the sector, use the > character. This option must be followed by a space or the end of the user defined string. Several examples are shown below: Pattern: **0x01&0x02** Wipe using a two byte pattern of 1 and 2. Pattern: **0x01 0xFF** Wipe first pass using the value 1, followed by a second pass using the value 255. Pattern: **0x01 0x0A R 0x00** Wipe first pass using the value 1, a second pass using the value 10, a third pass using random numbers, and a fourth pass using the value 0. Pattern: **23&32 010 0x7F** Wipe first pass using a two byte pattern of 23 and 32, a second

	pass of value 8, and a third pass using the value 127. Pattern: **0x55 0xAA R V** DOD 5220.22-M compliant. Wipe first pass using the value 85, a second pass of value 170, a third pass using random numbers, and a fourth pass to validate the third pass. Pattern: **0xFF 0 0x43** DOD 5200.28-M compliant. Wipe first pass using the value 255, a second pass of value 0, and a third pass of value 67. Pattern: **0xFF 0xFD&0xFF> N V** NAVSO P-5239-26 (MFM) compliant. Wipe first pass using the value 255, a second pass using a multi-byte pattern (253, 255) with 255 repeating to end of each sector, a third pass using non-repeating random data, and a fourth pass to validate the third pass. Pattern: **0xFF 0xE4&0xFF&0xFF&0xFF N V** NAVSO P-5239-26 (RLL) compliant. Wipe first pass using the value 255, a second pass using a multi-byte pattern (228, 255, 255, 255), a third pass using non-repeating random data, and a fourth pass to validate the third pass.

The entropy source for the wipe can be either of the following:

System	BootIt BM will use the system to obtain the entropy source.
Keyboard	You will be prompted to press random keys on the keyboard in order to generate enough entropy (i.e. “randomness”) for the wipe operation.

After selecting the desired options, click OK to wipe the drive.

Note

Canceling the wipe operation will not recover any data that has been wiped up to that point!

Change Disk Type

BootIt BM supports three different Disk Types and allows you to convert between them, thus changing the partitioning scheme in use on a particular drive. Note that there are some conversion limitations imposed due to their differences.

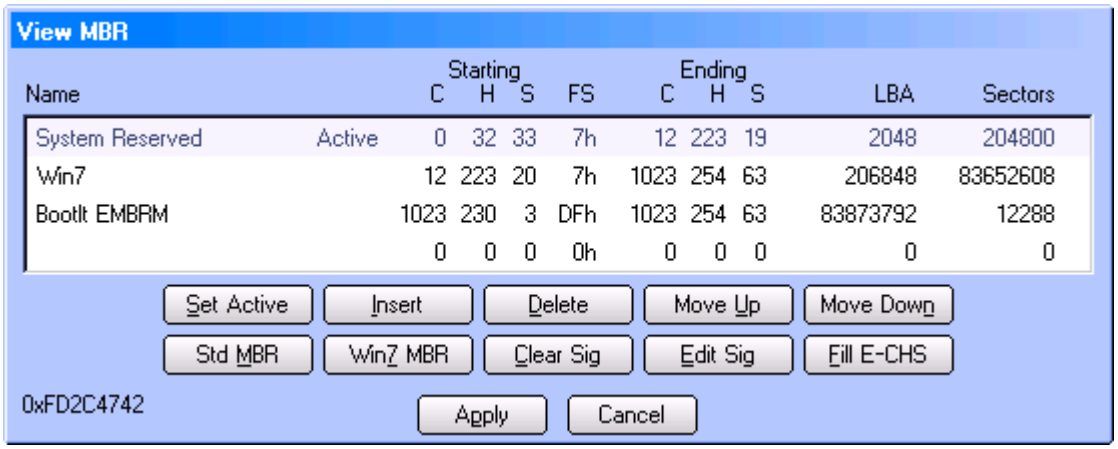
MBR	This is the standard Disk Type used in most current systems. Each drive can contain a maximum of four primary partitions or less than four and any number of volumes (logical partitions).
EMBR	EMBR partitioning allows over 200 primary partitions to be created on a drive. Up to four of these can be loaded into the MBR’s partition table for use by standard operating systems. BootIt BM requires an EMBR type drive for installation.

	Special partition flags are not retained when converting to another type.
GPT	BootIt BM supports GPT (GUID Partition Table) drives for partitioning only – not booting. Up to 128 primary partitions can be created. Special partition flags are not retained when converting to another type. **Warning:** GPT disks are not appropriate for bootable disks on standard PCs. A GPT disk allows partitioning above 2TiB and should only be created on a hard drive dedicated to data storage.

After performing a conversion, make sure to verify the partitions are correct and adjust any settings/flags as necessary.

View MBR

To view the contents of the MBR partition table or to make changes to the MBR, click View MBR.



Partitions currently loaded into the MBR are listed along with their sector details. The active partition is also indicated. The Disk Signature of the drive is displayed in the lower-left of the dialog. The Disk GUID, if any, is displayed in the dialog title.

The following options are available:

Set Active	Marks the selected partition (or slot) as active. To remove the active status (even though this is not something that most users want to do), press and hold down the *left* **Shift** key and then click Set Active to toggle the status.
Insert	Allows you to select which partition on the drive is loaded into the selected slot.
Delete	For MBR and GPT type drives, removes the selected partition from the partition table and the drive. The deletion takes place when Apply is clicked. For EMBR type drives, the partition is removed from the MBR, but not deleted from the drive.
Move Up	Moves the selected partition one slot up in the partition table.
Move Down	Moves the selected partition one slot down in the partition table.

Std MBR	Writes standard MBR code to the MBR (basically a small program to boot the active partition). This is equivalent to using *fixmbr* from the XP Recovery Console or writing the MBR using FDISK.
Win7 MBR	Writes a Windows 7 specific version of the MBR, which may be required for Windows 7 to boot on certain systems.
Clear Sig	This option is used to clear the Windows NT Disk Signature (used by Windows 2000 and higher), which is needed for Windows to boot correctly under several circumstances. For KB articles with details about why you may need to use Clear Sig, visit the **Windows NT/2K/XP/2003** section of the TeraByte Knowledge Base.
Edit Sig	Allows entering a Disk Signature manually, as may be directed by a tech support specialist.
Fill E-CHS	Fill E-CHS is used to force the ending CHS fields of all MBR partition table entries to their max values which is useful for a catch-22 situation when cylinder unaligned partitions exist and your BIOS does not properly implement or provide *LBA mode* support. This can help if you're getting an error booting BootIt BM that reads SPT < Minimum.

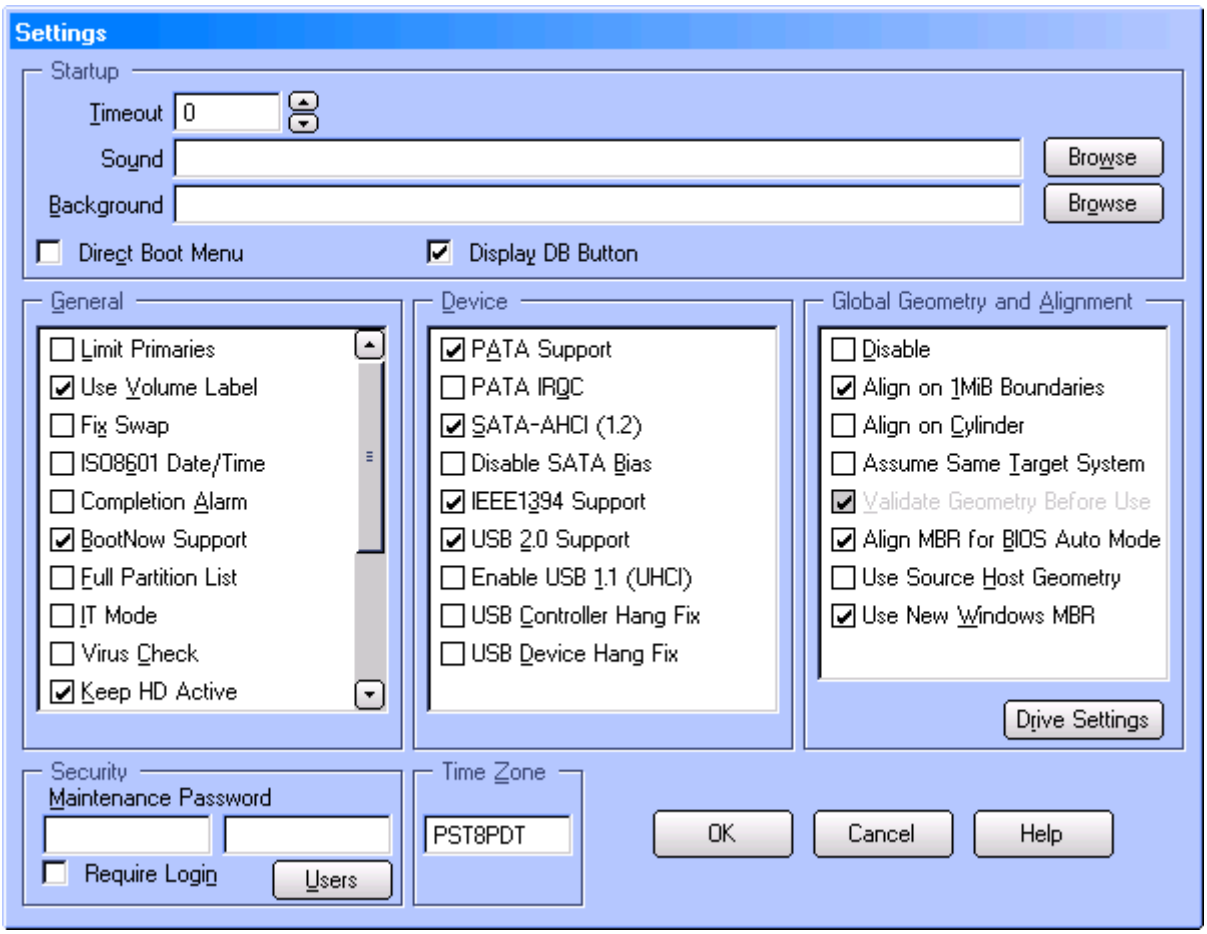
When finished making changes, click Apply to save them to the drive or Cancel to leave the MBR unchanged.

Program Settings

You can gain access to the Settings dialog box to change program settings or maintain users in two ways:

- On the desktop, click Settings.
- On the Edit menu, click Settings.

Settings are categorized below for easy reference.



Startup

Timeout	Set this to the number of seconds to wait for user input before automatically booting the most recently selected (or default) Boot Menu item. If set to zero, then no timeout will occur. This option only functions when BootIt BM first boots to the Boot Menu. Default: 0
Sound	The sound file that will be played when the Boot Menu is first displayed. Click the Browse button to select the file. See *Creating and Using Sound* for details on creating a sound file. Default: No file selected
Background	The background image file that will be displayed when the main Boot Menu screen is displayed. Only Paintbrush PCX graphic files are supported. Click the Browse button to select the file. The background graphic will only be displayed when BootIt BM is using a compatible video mode. For the best results, graphic should be sized to the resolution being used by BootIt BM as it will not be scaled. See *Creating Icons and Backgrounds* for more information on creating and using background images. Default: No file selected

Direct Boot Menu	Check this box if you want the Direct Boot Menu to be the default menu displayed when BootIt BM is booted. Default: Unselected
Display DB Button	Enable this option to allow access to the Direct Boot Menu by displaying a Direct Boot button on the Normal Boot Menu. Default: Selected

General

Limit Primaries	**Important:** This option has a profound effect on how BootIt BM operates. Enabling this option limits your system to the normal maximum of four primary partitions per MBR/EMBR type drive. In this mode, you can continue to use other partitioning programs such as DISKPART, Windows Disk Management, FDISK, etc. This option is grayed out and unavailable to enable if any of your existing hard drives have more than four primary partitions. This is a global option and can be overridden in each drive's individual settings. Note that changing the state of this option may change the state of the option for the individual drives. Limitations: This option does not affect GPT type drives. Default: Depends on option selected during installation.
Use Volume Label	Use the standard volume label of a FAT, FAT32, HPFS, or NTFS partition as the name of the partition when displayed in BootIt BM. With this option enabled, the volume label (as you would see in Windows) is used to identify the partition instead of the name saved in the EMBR, which may be different. If you change the name of a FAT or FAT32 partition and this option is enabled, the volume label for the partition will also be changed. Limitations: You can change an NTFS file system label, but you can't create a new one when one does not exist. Change the label in Windows to create it. Default: Selected
Fix Swap	Enable this option only if your system locks up when you use the Swap option in a Boot Menu item. **Warning:** Windows 9x may run in compatibility mode if you enable this option. Default: Unselected
Use Boot Item Disk IDs	Attempts to adjust the boot item configurations to match changes in drive order. Useful if you add or remove drives which change the BIOS drive order. Default: Unselected

ISO8601 Date/Time	Displays the date and time using the ISO8601 format: YYYY-MM-DD hh:mm (24 hour time is used) Example: Using ISO8601 format, 11/30/2010 3:50 pm would be displayed as: 2010-11-30 15:50 Default: Unselected
Completion Alarm	Sounds an alarm at the completion of a Copy, Resize, Slide, or Format procedure. Default: Unselected
BootNow Support	Enables support for TeraByte Unlimited's BootNow™ freeware program. BootNow allows you to reboot to a selected OS from DOS or any Microsoft Win32 OS (including XP, Vista, and Windows 7). It also allows you automatically boot back into a hibernated OS without displaying the boot menu (this is desirable when partitions are visible across different operating systems). For more information on using BootNow, please see the documentation included with the program. Default: Selected
Full Partition List	Displays the full list of partition types (file systems) when creating a new partition or volume and when viewing a partition's properties. If disabled, an abbreviated list of the most common types is displayed. Default: Unselected
IT Mode	In this mode, the graphical user interface (GUI) is not displayed and the system boots directly to the default boot item or last boot item, if no default is found. It should only be used with the Normal Boot Menu and not the Direct Boot Menu. Hold down the **Ins** key or *right* **Ctrl** key during the initial boot of your system to display the Boot Menu. Default: Unselected
Virus Check	A simple check for possible viruses is performed on boot up. If a possible virus is detected, you should use your anti-virus program with the latest virus definitions to scan for viruses. If none are found, you can disable this option to suppress the warning message. Default: Unselected
Keep HD Active	This special purpose option prevents the active flag from being turned off on hard drives not being booted. Active status on all hard drives remains active (you will not disable the active status on any hard drive). When disabled, BootIt BM would only set the active flag on the boot drive (all other drives would have it cleared). This may be undesirable if it is necessary to keep some other drive attached bootable. Applies to both Normal Boot and Direct boot. Default: Selected
MBRs may be	Select this option to prevent BootIt BM from clearing garbage data from the

Encrypted	MBR and replacing it with a normal empty MBR when the MBR contains garbage or otherwise appears invalid. Some operating systems require all drives to have a valid MBR in order to boot up properly. However, encrypted drives may have an encrypted MBR which appears to be garbage. In these cases, replacing the MBR data with a valid MBR is not desirable. Default: Selected
Volume Sequence as ID	When enabled, the ID numbers for volumes (logical partitions) are based on position instead of a random number. The ID is created when the partition is created (or detected, if create outside of BootIt BM). If not enabled, BootIt BM ignores the ID that would otherwise be used and just uses an incremental number starting at 1. Default: Unselected
Assume Original HD	If you select this option, Image for DOS will keep references to the source hard drive number intact within the partitions that have been restored to the target. If you do not select this option and the target drive number differs from that of the source drive, applicable drive references residing within the restored partitions will be updated to reflect the new hard drive number. This option has no effect if you are restoring to a target drive whose number matches that of the source drive. If you are restoring to a target drive whose number differs from that of the source drive, but you plan to subsequently move the target drive so that its number matches the source drive again, enabling this option can be beneficial. This option applies only when restoring a backup image. Default: Unselected
Use HD0 in FAT BPB	Forces the BPB (BIOS Parameter Block) drive number to HD0 even when it's on another drive. The BPB is a block of bytes located in the FATxx (FAT16, FAT32, etc.) boot sector (the first sector of a partition) and is created when the partition is formatted. One of those bytes is the BIOS drive number, which corresponds to the physical hard drive on which the partition is located. It would normally be 80h for HD0, 81h for HD1, 82h for HD2, etc. With this option enabled, BootIt BM will always make that byte 80h when copying or formatting a partition, regardless of which drive the partition is on. When that option is not selected, BootIt BM will always make that byte correspond to the drive it's on. Disable this option if you need to copy or format a FATxx partition located on a drive other than HD0 which will be placed into the HD0 position for normal booting. Default: Selected
Make HD0 Active	Required by many new BIOSs when booting from a hard drive other than HD0. This option ensures that HD0 is always active (has an active partition entry). Default: Selected

Resize with Caching	Enable this option to reduce the time required to resize a partition by using a cache. Default: Selected
Disable Fixups	Disables additional processing that attempts to suppress the need to use Clear Sig after moving, sliding, or copying partitions used by Windows 2000 or later (includes XP, Vista, and Windows 7). Enable this option if you need to perform all Disk Signature and Windows drive letter assignments manually and require that BootIt BM not make any automatic corrections. Default: Unselected

Device

PATA Support	Allows direct access to PATA controllers, bypassing the BIOS. Disable this option to prevent BootIt BM and Image for DOS from directly accessing PATA controllers. Drives connected to the PATA controller will only be accessible through the BIOS. BIOS (direct) access for these drives will be disabled. Default: Selected
PATA IRQC	You would enable or disable this option if you have problems trying to open the Partition Work dialog with the PATA Support option enabled. The symptoms can be anything from hanging to a list of partitions that only show free space (no partitions). Default: Unselected
SATA-AHCI (1.2)	Allows direct access to SATA controllers, bypassing the BIOS. Disable this option to prevent BootIt BM and Image for DOS from directly accessing SATA controllers. Drives connected to the SATA controller will only be accessible through the BIOS. BIOS (direct) access for these drives will be disabled. This option should be disabled if you are experiencing system hangs or drive access problems when using BootIt BM. These issues arise when BootIt BM cannot match a SATA drive to a BIOS drive and defaults to using the BIOS drive. When the BIOS drive is accessed, the BIOS will hang the system until it times out (if ever). Note: Disabling SATA support prevents access to SATA CD/DVD drives. Default: Selected
Disable SATA Bias	Because some systems have no support whatsoever to match BIOS and SATA drives (see Disable SATA Support option), BootIt BM employs a special matching routine to try to identify the BIOS drives that relate to each SATA drive. In some cases, BootIt BM might inadvertently match a BIOS drive to a SATA drive incorrectly. If you experience such an issue, recreate the boot

	media with the Disable SATA Bias option selected.
IEEE1394 Support	When this option is enabled, BootIt BM and Image for DOS will be able to access IEEE1394 (FireWire) drives. Default: Selected
USB 2.0 Support	Enables support for USB 2.0 hard drives and CD/DVD drives. If disabled, USB 2.0 hard drives will still be available through the BIOS if it supports them (note that most newer systems only have them show up if connected when the computer is booted). It may be necessary to disable this option if BootIt BM or Image for DOS locks up when looking for USB drives. Default: Selected
Enable USB 1.1 (UHCI)	Select to enable USB 1.1 (UHCI) support for older systems that don't support USB 2.0. Some new systems require this option or the USB port will hang and stop detection of any USB devices. This option does not affect USB 2.0 support.
USB Controller Hang Fix	If you experience problems with USB 2.0 devices hanging, you can enable this option to attempt to correct it. This option can degrade USB IO performance, but will prevent hangs with certain controllers and/or devices.
USB Device Hang Fix	If you experience problems with USB 2.0 devices hanging, you can enable this option to attempt to correct it. This option can degrade USB IO performance, but will prevent hangs with certain controllers and/or devices.

Global Geometry and Alignment

These options will be the default for all drives in the system that have the Use Global Settings options selected in Drive Settings. You can unselect Use Global Settings for a drive if you need to apply different options. See *Drive Settings* for details.

Disable	Disables the global geometry settings. BootIt BM and Image for DOS will revert to using program defaults or drive specific overrides (equivalent to those used by Image for DOS prior to version 2.52). For normal use, it is not recommended to disable Global Geometry, which provides an easy method of applying geometry settings system-wide. Default: Unselected
Align on 1MiB Boundaries	This option provides a convenient way to enable 1MiB partition alignment for all drives (drives with 512 byte sectors will be aligned on 2048 sectors; drives with 4096 byte sectors will be aligned on 256 sectors). When this option is enabled, partition alignment will be configured using the Windows Vista and Windows 7 standard. This is popular with users of SSD type drives, which require this alignment for optimal performance. Enabling this option is equivalent to using the following Drive Settings | Geometry Override options: enabling Align on 1MiB Boundaries, Align MBR

Ending HS, and Align MBR HS when Truncated; disabling Align on End.

GPT drives are aligned at 1MiB boundaries regardless of this option's setting.

Also see the Align on Cylinder option (below) as it affects this option.

Default: Unselected

Align on Cylinder

This option is used in conjunction with Align on 1MiB Boundaries to provide an easy way to auto determine alignment and to default a blank drive to use either 1MiB alignment or cylinder alignment.

The actual alignment method used on a drive depends on Align on 1MiB Boundaries and Align on Cylinder as well as the alignment of any existing partitions on the drive.

Align on 1MiB Boundaries	Align on Cylinder	Alignment Method Used
Enabled	**Enabled**	Cylinder alignment if drive contains existing cylinder aligned partition(s), otherwise 1MiB alignment
Enabled	**Disabled**	1MiB alignment
Disabled	**Enabled**	Cylinder alignment
Disabled	**Disabled**	1MiB alignment if drive contains existing 1MiB aligned partition(s), otherwise cylinder alignment

GPT drives are aligned at 1MiB boundaries regardless of this option's setting.

Default: Unselected

Assume Same Target System

Enable this option to prevent problems when a backup image of another system's drive is restored to a drive connected to a different system and drive will be put back into the original system.

This option uses drive geometry based on the MBR entry of the first partition in the backup image file.

For example, consider the following scenario:

- A backup image of PC-A's hard drive was previously created using PC-A.
- The drive in PC-A fails. A new drive is obtained to replace the failed drive.
- The decision is made to use PC-B to perform the restore since it will process it much more quickly.
- The new drive is connected to PC-B and the image is restored to it.
- The new drive is then installed in PC-A, replacing the failed drive.

Without this option enabled, the restoration would setup the partition on the new hard drive to boot properly for PC-B, which can sometimes (not always) be a problem when the hard drive is going back to PC-A. Using this option solves that problem.

	This option is equivalent to the individual drive's Use MBR Geometry override and applies only when restoring a backup image. Default: Unselected
Validate Geometry Before Use	The option is used to ensure that the geometry from the MBR on the original system is aligned to known standards before accepting it for use. It only applies when the Assume Same Target System option is enabled. Note that you can only change the status of this option when the Assume Same Target System option is enabled. If the validation fails, the geometry values used will be the same as if the option were disabled (Original or currently reported values). This option is equivalent to disabling the individual drive's Validate MBR Geometry override and applies only when restoring a backup image. Default: Selected and the control (checkbox) is disabled
Align MBR for BIOS Auto Mode	Enable this option to prevent problems with unaligned partitions on systems with their BIOS using Auto Mode. Many newer systems use Auto Mode by default, and some don't even have an option to turn it off. This is equivalent to enabling the individual overrides Align MBR Ending HS and Align MBR HS when Truncated in Drive Settings. Default: Selected
Use Source Host Geometry	Enables the use of the drive geometry saved in the backup image that represents the geometry from the environment (Windows, Linux, or DOS) used to create the backup file. The saved drive geometry is used for the restored partition(s) instead of the geometry in use on the current system (which may differ). Note that this option is quite similar to the Use MBR Geometry option (both are attempting to solve the same problem). It is generally recommended to try the Use MBR Geometry option first, which obtains the geometry from the MBR of the backup image. This option is equivalent to the individual drive's Use Original Geometry override and applies only when restoring a backup image. Default: Unselected
Use New Windows MBR	Windows Vista and later tied the kernel loader to the MBR code such that using previous MBR code may not allow Windows Vista or later to boot on certain machines. Enable this option to use the code base compatible with Windows Vista or later any time the MBR code on a drive needs written or updated. The new MBR code will continue to boot older OSes with the exception of some (rare) configurations using Win9x on FAT32. Regardless of the setting of this option, you can write either the old standard MBR code or the new Vista and later compatible MBR code to a drive in the View MBR window in Partition Work.
Drive Settings	Click to select a hard drive and modify its individual settings. See *Drive Settings* for more information.

Security

Maintenance Password	Enter the password required to exit a Boot Menu and enter Maintenance Mode (the desktop). The password must be entered into both boxes to verify it is input correctly. Default: No password (both boxes empty)
Require Login	Enable this option to require that a user name and password must be entered when the system is booted. This option has no affect if no users have been configured. Default: Unselected
Users	Click the Users button to add, edit, or delete users in the User Setup dialog box. See the *Users* section for details. Default: No users configured

Time Zone

Time Zone

Enter the Formatted Time Zone Identifier using the following format:
`zzz[+/-]d[d][lll]`

`zzz`	Three character time zone identifier.
`d`	Number opposite of the UTC offset. May be one or two digits.
`lll`	Optional three character Daylight Savings time identifier.

For example: PST8PDT, MST7MDT, CST6CDT, EST5EDT

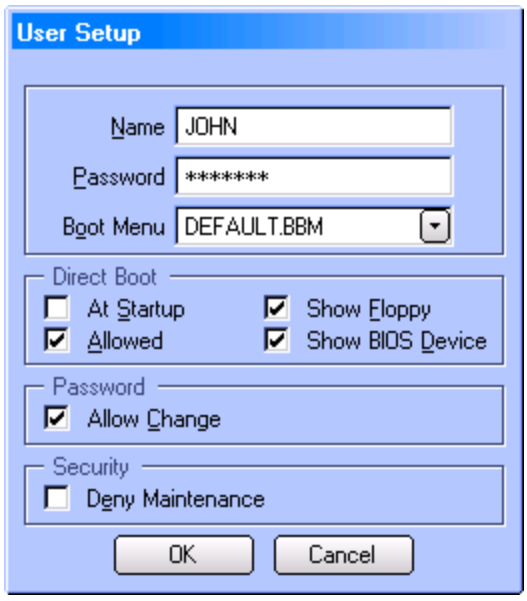
Please see the following TeraByte KB article for more information:
http://www.terabyteunlimited.com/kb/article.php?id=260

Default: Not set

Users

Using User Setup, you can assign each user their own Normal Boot Menu (page 29) and Direct Boot Menu (page 34) options. Access User Setup by clicking the Users button on the Settings dialog box.

When adding or editing a user, the following options are available:



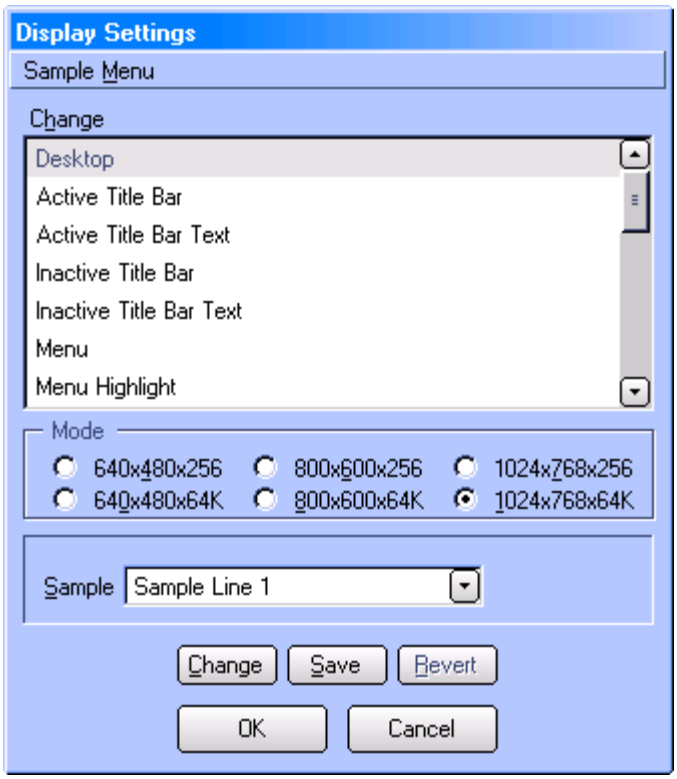
Name	Enter the user's name.
Password	Enter the password for the user.
Boot Menu	Select the Boot Menu for this user. See *The Normal Boot Menu* for details on creating a Boot Menu.
At Startup	Enable this option to have the Direct Boot Menu displayed when BootIt BM starts.
Allowed	Enable this option to allow access to the Direct Boot Menu.
Show Floppy	Enable this option to display the Floppy Drive item in the Direct Boot Menu.
Show BIOS Device	Enable this option to display the Next BIOS Device item in the Direct Boot Menu.
Allow Change	This option allows the user to change their password by clicking the Password button on the Normal Boot Menu.
Deny Maintenance	When enabled, the Maintenance button is removed from the Boot Menu to prevent access to Maintenance Mode.

Note

If you add a user named any with no password, then that user will be logged on automatically unless you press and hold down the Insert key (**Ins**) during startup.

Display Settings

On the Edit menu, click Display Settings to change the colors and resolution used by BootIt BM. You will be able to change each item's color by selecting it in the list box and clicking Change.



To change the resolution and number of possible colors, click on the radio button in the Mode group. Note that when changing between an entry that ends with x256 and x64K that the colors may change. This is normal; you will simply need to adjust the colors while in that mode. If changing a mode causes the screen to go black or scramble, press Escape or **Alt-R** to revert back to the last saved settings.

To change the color for a specific item, select the item in the Change list and click Change. Items on the Display Settings dialog box will be updated to use the new color.

Once you get the colors and mode adjusted the way you like, you can click the Save or OK button to save the changes.

If you find that you don't like the color settings that you have chosen, you can click Cancel or the Revert (**Alt-R**) button to revert back to the last saved colors and mode.

Creating and Using Sound

A BootIt BM sound file is nothing more than a text file with a .snd extension. To help you create sound files and play them back at a command prompt, download the TeraByte Unlimited PLAYSND shareware utility by visiting **www.terabyteunlimited.com**, clicking BootIt Bare Metal under Downloads, and then scrolling down to PLAYSND. Note that the sounds may run faster under Windows than in BootIt BM.

When entering commands into the file, please note that capitalization and spacing is not important.

The x in the following commands represents a number:

Command	Purpose

cycles=x	Number of times to cycle the entire routine (optional—must be first)
Fx	Frequency to play (in hertz [Hz])
FRx|xSxLx	Frequency range to play. The first x is the starting frequency; the second x is the ending frequency. **S** (optional) is the step frequency rate (the default is 1). **L** (optional) is the latency delay in milliseconds between frequency step (the default is 0).
Dx	Delay in milliseconds (1000 milliseconds equals 1 second)
N	No sound—turns sound off

The following sample routine plays 2000 Hz for 0.5 seconds, pauses with no sound for 1 second, plays 500 Hz to 2000 Hz stepping 10 Hz with a delay of 0.005 seconds between steps, and then does the same thing only from 2000 Hz to 500 Hz:

F 2000 D 500 N D 1000

FR 500 | 2000 S 10 L 5

FR 2000 | 500 S 10 L 5

Install a sound file

1. Copy the sound (.snd) file to a floppy drive able to be accessed from BootIt BM.
2. On the desktop, click Settings or select the Edit menu and click Program Settings.
3. In the Settings dialog box under Startup, next to the Sound box, click Browse.
4. Browse to the sound file on the floppy disk by typing A: or B: (depending on the drive being used) and pressing **Enter**.
5. From the list of files displayed, select the desired file and click OK to copy it to the hard drive.

Note

For systems without a floppy drive, see *Copying Files into the EMBRM Partition*.

Creating Icons and Backgrounds

To create or contribute icons or backgrounds, please reference the contents of the graphics.zip file located in the BootIt BM folder.

Background images can be placed into the BootIt EMBRM partition by saving them on a floppy disk and then browsing to them from Settings (as when installing a sound file) or by copying them directly into the partition (see *Copying Files into the EMBRM Partition*).

Copying Files into the EMBRM Partition

To easily copy sound files, backgrounds, or any other necessary files into the BootIt EMBRM partition, the partition type can be changed to FAT (6). This allows the partition to show up as a standard FAT partition and files can be copied to it using normal methods (Windows Explorer, for example).

If necessary, please reference *Working with Partitions* and *View partition properties*.

1. Boot into BootIt BM.
2. Enter Partition Work.
3. Select the BootIt EMBRM partition. This partition is usually located on the booting drive (HD0).
4. Click Properties.
5. Change the File System to 6/6h: FAT-16.
6. Click OK.
7. Return to the desktop and select Boot Edit.
8. Select the operating system you will be using to copy the files and then click Edit.
9. Make sure the BootIt EMBRM partition is loaded into the MBR. If this is not done, the partition will not be visible when the operating system is booted.
10. Click OK and then OK again to return to the desktop.
11. Click Resume and then boot into the desired operating system.
12. Copy the files to the BootIt EMBRM partition.
13. When finished, change the BootIt EMBRM partition type back to 223/DFh: BootIt EMBRM. Optionally, edit the operating system menu item and remove the partition from the MBR.

Using the Multi-OS Feature

The BootIt BM Multi-OS feature lets you boot more than one operating system from the same primary partition. BootIt BM supports Multi-OS in FAT, FAT32, NTFS, and Ext primary partitions.

To enable this feature, select the Multi-OS checkbox when creating the partition or, after the partition is created, select the Multi-OS checkbox in the properties dialog box available through the Work with Partitions dialog box.

Once enabled, you can install multiple operating systems into the Multi-OS partition (but in different folders) or, you can install multiple operating systems in separate partitions and use the Multi-OS partition as a shared boot partition. When you reboot, BootIt BM detects the new operating system and creates a new boot menu option for it. If the new operating system is not detected, you can manually capture the required files by clicking Groups in the Work with Partitions dialog box.

To add, remove, or change the handling of any of the files associated with a group, select the Multi-OS partition in the Work with Partitions dialog box, and then click Groups.

Some operating systems use the same folder structure for some of their files. This could cause some files to be overwritten. For example, both Windows 95 and 98 use the \PROGRAM FILES folder for an Accessories folder; so even if you had Windows 95 installed in \WINDOWS, and then installed Windows 98 to \WIN98, Windows 98 Setup could overwrite the files in the Accessories folder. To solve this, you

could have installed Windows 98 to its own drive letter—D:\WINDOWS, for example. In this case you still need the Multi-OS feature on the boot partition because Windows 98 will install its boot files on drive C:, and the rest would be installed to drive D:. The Multi-OS feature protects the Windows 95 boot files on drive C: and creates a new set for Windows 98.

Setting Up Multi-OS Groups on Different Operating Systems

Review the following sections for information about files and file positions required for boot for *DOS*, *Windows 95/98/ME*, *Windows NT/2000/XP/2003*, and *OS/2*. For specific details about specific operating systems, visit: **www.terabyteunlimited.com/kb/**

DOS

The following files and file positions required for boot (not including any compression drivers):

MS DOS	
Position	**Name**
1	io.sys
2	msdos.sys
0	command.com
0	autoexec.bat
0	config.sys

PC DOS	
Position	**Name**
1	ibmbio.dos
2	ibmdos.com
0	command.com
0	autoexec.bat
0	config.sys

Windows 95/98/ME

The following files and file positions required for boot (not including any compression drivers):

Position	Name
0	io.sys
0	msdos.sys
0	command.com
0	autoexec.bat
0	config.sys

Windows NT/2000/XP/2003

The following files and file positions required for boot:

Position	Name
0	ntldr
0	boot.ini
0	ntdetect.com
0	ntbootdd.sys*

* NTBOOTDD.SYS is used with NT version 3.x with SCSI hard drives. It is a copy of the SCSI driver renamed to NTBOOTDD.SYS.

OS/2

The following files and file positions required for boot:

Position	Name
0	autoexec.bat

0	config.sys

Note that the system files for OS/2 are OS2KRNL, OS2LDR, OS2LDR.MSG, OS2RAS, OS2VER, OS2BOOT, and WP ROOT.SF. If you were going to install more than one version of OS/2 in the same partition, you would need to do something with these files.

Setting Up a Multi-OS Partition

Review the following example about how to set up a Multi-OS partition. Before reading this section, consider reading *Prepare for a BootIt BM setup* on page 10.

This procedure assumes that BootIt BM is installed and that the selected partition already contains an operating system. Also, you use the Normal Boot Menu when booting Multi-OS partitions; otherwise, booting an item without a group causes the last booted item to boot.

Enable Multi-OS on a partition

1. On the desktop, click Partition Work or select the Edit menu and click Partitions.
2. Select the existing partition and then click Properties.
3. Rename the partition as appropriate.
4. Select the Multi-OS checkbox and then click OK.
   - If BootIt BM recognizes the installed operating system, a new group and menu configuration item is created.
   - If BootIt BM *does not* recognize the installed operating system and a new group and menu configuration item is not created, click the Groups button to add the files or group manually as described in *Using the Multi-OS Feature* on page 70.
5. If you had an existing boot item configured, you can now edit the Boot Menu and either delete the previous entry or add the group name to it.

Installing Operating Systems

Review the following generic examples about installing an operating system. Before reading this section, consider reading *Prepare for a BootIt BM setup* on page 10.

Install an OS in its own single partition—*the most common choice*

1. Install BootIt BM as described on page 10.
2. Use the Work with Partitions dialog box (as described on page 38) to create a partition for your OS.
3. To create a new menu item for booting the new partition, on the desktop, click Boot Edit.
4. Click Add to add a new menu item. If necessary, please reference *Set up the Normal Boot Menu*.
5. Select the partition that you created in Step 2 as the boot partition.
6. Under One Time Option, do one of the following:
   - If the installation boot media is a floppy disk, then select the Floppy check box.
   - If the drive to boot the installation boot media is set to boot after your hard disk, select the Next BIOS Device checkbox.
   - If the drive to boot the installation boot media is set to boot before your hard disk, select the BIOS Sequence checkbox.

   Some systems hang when using the Next BIOS Device option and others will use the BIOS Sequence option as a Boot Next Device option. In the end, you can boot from the CD/DVD any way you want – just be sure that the last booted boot item is the one to which you are installing. Even a *simulated boot* is fine.
7. Click OK twice to save the new item and return to the desktop.
8. On the desktop, click Resume.
9. Insert the OS installation media.
10. Boot the new boot item that you created in Step 3.
11. If you *did not* select a One Time Option in Step 6, depending on the partition, it will either display a message saying that there is no operating system installed on the partition or that the partition is not bootable and presents the option to boot from the floppy disk instead. Press the appropriate key to continue or **Ctrl-Alt-Del** if you need to boot from a CD/DVD drive that is configured (in the BIOS) to boot before the hard drive.
12. The installation media is now booted and you can begin installation to the drive.

Create paired partitions or Multi-OS installations

Complete the following steps when installing the bulk of a Microsoft operating system (MS OS) on another hard drive or drive letter. This also applies to installing a MS OS to a volume (logical partition). The difference between paired partitions and Multi-OS installations is that using Multi-OS you can share the boot partition (Step 1 to many Step 2s) whereas with paired partitions the pair of partitions (Step 1 and Step 2) are always different.

1. If needed, use the Work with Partitions dialog box (as described on page 38) to create a partition for the OS on HD0.

   You can create the partition as small as possible, depending on the OS. A 5 MB partition may be enough. For supported file systems, verify that the Format checkbox is selected. If you are going to use Multi-OS, select the Multi-OS checkbox.
2. If needed, use the Work with Partitions dialog box to create the main OS partition or volume. For supported file systems, verify that the Format checkbox is selected.
3. To create a Boot Menu item for the new OS partition, on the desktop, click Boot Edit.
4. Click Add to add a new menu item. If necessary, please reference *Set up the Normal Boot Menu*.
5. Select the partition that you created in Step 1 as the boot partition.
6. Under MBR Details, select an entry for the correct HD and then click Fill.
7. From the list, select the main OS partition.
8. Under One Time Option, do one of the following:
   - If the installation boot media is a floppy disk, then select the Floppy check box.
   - If the drive to boot the installation boot media is set to boot after the hard drive, then select the Next BIOS Device checkbox.
   - If the drive to boot the installation boot media is set to boot before the hard drive, then select the BIOS Sequence checkbox.
9. Click OK twice to save the new item and return to the desktop.
10. On the desktop, click Resume.
11. Insert the OS installation media.
12. Boot the new boot item that you created in Step 4.
13. When the **OS Setup** starts, select the existing (main) OS partition that you created in Step 2.

    Once setup completes, the OS boots from the partition on HD0 (Step 1) and transfers itself to main OS partition (Step 2).

OS Installation Notes

- If you do not have partitions limited under settings, you should usually use the advanced or custom installation choices to verify that the installation routine does not try to create a new partition. Because the OS and system tools only see the partitions that are in the MBR, if it creates or moves a partition, it may put it right on top of an existing one that is not currently in the MBR partition table. You can, however, create or move volumes in an extended partition provided that the actual extended partition does not get moved or expanded.
- Some operating systems (such as Windows 95/98) deactivate BootIt BM. If that is the case, all you need to do is boot with your BootIt BM Setup media, and then select the Reactivate BootIt Bare Metal option.
- One common configuration is to have multiple primary partitions—one for each operating system—and one common (shared) extended partition for data. To do this, indicate the boot partition and then add the extended partition to the MBR for each Boot Menu item.
- For more information or OS-specific information, visit **www.terabyteunlimited.com/kb/** and then navigate to the desired area of interest.

Advanced Program Options

Many of BootIt BM's options can be easily configured using Settings. However, some are only available when creating the boot media and others have no GUI accessible equivalent. Editing the appropriate files directly allows any of these settings to be changed as required.

The option files can be edited directly using BootIt BM or using any standard text editor (such as Windows Notepad) from a booted operating system (assuming the BootIt EMBRM partition has been made available to the OS). For details, please see *Editing a file*.

INI File Options

These options are found in the bootitbm.ini file located in the BootIt EMBRM partition. The file is divided into several sections using the standard INI file layout. Each section begins with its name in brackets followed by its options, one per line. For example, the Video section begins with [Video] and normally contains two options, Method and Mode.

```
[Video]
Method=1
Mode=36
```

As you can see, each option name is followed by the equals sign (=) and the current value. The value can be either a number or text, depending on the option.

Note

- Options currently set at their default value are usually not displayed in the INI file.
- Image for DOS also uses the bootitbm.ini file for its options. Please refer to the Image for DOS manual for details on its options.

The options below are categorized by section for easy reference.

Video

The video access method, resolution, and color depth options are contained in the [Video] section.

Method

If this option is set to 0, BootIt BM Attempts to access the video chipset directly for supported chipsets. It is not recommended to select this option unless you know for certain it is required (e.g. VESA doesn't work or you're instructed to use it by TeraByte support).

If set to 1, BootIt BM uses the VESA Video standard for the display instead of a specific chipset implementation. Support is provided by the video card's BIOS. This is the recommended video method.

Each video method will normally fall back to the other one if the selected one fails. If this does not happen and you receive an error, try using the other video method.

Specifying a value other than 0 or 1 will force the use of a specific chipset without testing if it's available. This is not recommended unless instructed to do

	so by TeraByte support.
Mode	Sets the video resolution and color depth. Use the desired value from the chart below. **Mode / Horz / Vert / Depth** **34** 640 480 64K **35** 800 600 64K **36** 1024 768 64K **25** 640 480 256 **26** 800 600 256 **27** 1024 768 256 **18** 640 480 16* **Standard VGA – 16 Colors setting.* Specifying a value that your system does not support will cause BootIt BM to revert to mode 18. Using modes other than those listed above may cause BootIt BM to crash or lock-up on startup.

Options

The [Options] section contains the majority of the program's options, many of which are located in Settings.

StartAt	0 = Display desktop at startup 2 = Display the Work with Partitions dialog at startup Remove this option to return to the default of starting at the Boot Menu.
VolumeLabels	0 = Disabled; 1 = Enabled (default) See *Settings | Use Volume Label* on page 59.
SeqVolID	0 = Disabled (default); 1 = Enabled See *Settings | Use Volume Sequence in ID* on page 61.
MakeHD0Active	0 = Disabled; 1 = Enabled (default) See *Settings | Make HD0 Active* on page 61.
KeepHDActive	0 = Disabled; 1 = Enabled (default) See *Settings | Keep HD Active* on page 60.
MBREncryption	0 = Disabled; 1 = Enabled (default) See *Settings | MBRs may be Encrypted* on page 60.
DirectBootFDD	0 = Disabled; 1 = Enabled (default) This option is controlled automatically when Users are being used. It is not recommended to manually change this option. See *User Setup | Show Floppy* on page 67.

DirectBootNBD	0 = Disabled; 1 = Enabled (default) This option is controlled automatically when Users are being used. It is not recommended to manually change this option. See *User Setup | Show BIOS Device* on page 67.
DirectBootAllowed	0 = Disabled; 1 = Enabled (default) See *Settings | Display DB Button* on page 59.
DirectBoot	0 = Disabled; 1 = Enabled See *Settings | Direct Boot Menu* on page 59.
UseHD0InBPB	0 = Disabled (default); 1 = Enabled See *Settings | Use HD0 in BPB* on page 61.
LimitPrimaries	0 = Disabled; 1 = Enabled See *Settings | Limit Primaries* on page 59.
RequireUser	0 = Disabled (default); 1 = Enabled See *Settings | Require Login* on page 66.
FixSwap	0 = Disabled (default); 1 = Enabled See *Settings | Fix Swap* on page 59.
ITMode	0 = Disabled (default); 1 = Enabled See *Settings | IT Mode* on page 60.
BootNow	0 = Disabled; 1 = Enabled (default) See *Settings | BootNow Support* on page 60.
FullPartitionList	0 = Disabled (default); 1 = Enabled See *Settings | Full Partition List* on page 60.
CompletionAlarm	0 = Disabled (default); 1 = Enabled See *Settings | Completion Alarm* on page 60.
LimitWrites	0 = Disabled (default); 1 = Do not track last boot item. 2 = Do not write return information when launching external applications. 3 = Both 1 and 2 above. Use this option to reduce writes to the media. Note that using this option has an affect on how the program operates.
SaveLastBootOnly	0 = Disabled (default); 1 = Enabled When enabled, the last booted item will only be tracked when actually

	booted (i.e. not on simulated boot or boot of unbootable partition). This was the default method on versions prior to 1.24.
BootMenuXY	The Normal Boot Menu screen position (saved by pressing F11 when the boot menu is displayed). Removing the option will reset the position to the default location (center of screen).
CacheResize	0 = Disabled; 1 = Enabled (default) When enabled, a cache will be used to reduce the time required to resize a partition.
NoRegUpdate	0 = Disabled (default); 1 = Enabled See *Settings | Disable Fixups* on page 62.
ISO8601	0 = Disabled (default); 1 = Enabled See *Settings | ISO8601 Date/Time* on page 60.
USB	0 = Disabled; 1 = Enabled (default) See *Settings | USB 2.0 Support* on page 63.
1394	0 = Disabled; 1 = Enabled See *Settings | IEEE1394 Support* on page 63.
DisableMaintenance	0 = Disabled; 1 = Enabled (default) When enabled, the Maintenance button is not available on the Boot Menu. This prevents access to Maintenance Mode.
UseOrgHDNum	0 = Disabled (default); 1 = Enabled See *Settings | Assume Original HD* on page 61.
TimeOut	See *Settings | Timeout* on page 58. Default value is 0.
AtapiDMA	1 = PATA; 2 = SATA; 3 = Both PATA and SATA Use this option to have Image for DOS use a higher performance method of accessing ATAPI devices. Examples of ATAPI-type devices include CD and DVD drives. If this option is not used, Image for DOS uses an older, yet more compatible, method of accessing ATAPI devices.
Atapi32	0 = Disabled (default); 1 = Enabled When enabled, 32-bit IO will be used for ATAPI devices.
ATA32	0 = Disabled; 1 = Enabled (default) When enabled, 32-bit IO will be used for ATA devices.
PATAIRQCTL	0 = Disabled (default); 1 = Enabled

	See *Settings | PATA IRQC* on page 62.
NoPATA	0 = Disabled (default); 1 = Enabled Enable this option to prevent BootIt BM and Image for DOS from directly accessing PATA controllers. See MakeDisk option *Disable PATA Support* on page 16.
NoSATA	0 = Disabled (default); 1 = Enabled Select this option to prevent BootIt BM and Image for DOS from directly accessing SATA controllers. See MakeDisk option *Disable SATA Support* on page 16.
ShareSATA	0 = Image for DOS takes control of the controller 1 = Image for DOS employs a minimally evasive method of accessing the controller 2 = Command Line Only – Use method 1, but do not force BIOS (direct) If this option is not used, Image for DOS takes control of the controller.
SATAIgnoreMask	Use this option to prevent access to certain SATA AHCI host controllers. To ignore the first SATA controller, use 1, and to hide the second SATA controller, use 2. To hide the third SATA controller, use 4. To hide both the first and second SATA controllers, use 3. Note: This option uses a basic Bit Mask numbering scheme. By default, Image for DOS takes control of all SATA AHCI host controllers.
CheckATA	0 = Disabled; 1 = Enabled (default) Enable this option to have Image for DOS check the ATA interface even if the BIOS reports a drive as being a SATA device instead of ATA. Disable this option to have Image for DOS honor the BIOS Interface. By default, Image for DOS checks the ATA interface even when the BIOS reports the drive as SATA.
CheckSATA	0 = Disabled; 1 = Enabled (default) Enable this option to have Image for DOS check the SATA interface even if the BIOS reports a drive as being an ATA device instead of SATA. Disable this option to have Image for DOS honor the BIOS Interface. By default, Image for DOS checks the SATA interface even when the BIOS reports the drive as ATA.
BIOSMBRM	0 = Disabled; 1 = Enabled (default) Disable this option to disable SATA Bias. See *Settings | Disable SATA Bias* on page 62.

USBLIO	0 = Disabled (default); 1 = Enabled See *Settings | USB Controller Hang Fix* on page 63.
USBCO	4 = Enabled; Remove option to use default value See *Settings | USB Device Hang Fix* on page 63. Enabling this option might help in cases where you experience lockups with certain USB 2.0 devices. The possible values are 0, 1, 2, 3, and 4. To help prevent lockups with a USB device, use the value 4. If this option is not set, the default value is 1.
USBCOT	If USBCO=4 is used, this option sets the internal delay loop used in microseconds. The default value is 25.
USBEASD	When using USBCO=1 (the default), this option sets the internal delay loop used in microseconds. The default value is 1.
USBIgnoreMask	Use this option to hide certain USB host controllers. For example, if you have a USB keyboard, BootIt BM or Image for DOS might disable the keyboard when it takes control of the USB2 host controller. Using this option, you can hide the host controller of that USB keyboard and attach the USB keyboard to a different controller. It usually takes some experimentation to determine which controller to hide, but the two USB ports next to each other are usually controlled by the same host controller. To hide the first USB controller, use 1, and to hide the second USB controller, use 2. To hide the third USB controller, use 4. To hide both the first and second USB controllers, use 3. Note: This option uses a basic Bit Mask numbering scheme. By default, BootIt BM and Image for DOS take control of all detected USB2 host controllers.
UHCI	0 = Disabled (default); 1 = Enabled See *Settings | Enable USB 1.1 (UHCI)* on page 63.
BIOSATA	0 = Disabled (default); 1 = Enabled Note: This option is used by Image for DOS. If you don't supply any modifier for the hard drive via the command line, this option tells Image for DOS to use the BIOS (Direct) access method. In this mode, Image for DOS detects the source and target drives using the system BIOS, but then Image for DOS bypasses the BIOS and accesses them directly. Using this option might improve performance on some systems. If you don't supply any modifier for the hard drive, Image for DOS uses the BIOS access mode, which permits the system BIOS to both detect

	and access the source and target drives.
PWNoBusTerm	0 = Disabled (default); 1 = Enabled When enabled, BootIt BM will not terminate bus controller when leaving Partition Work. Special purpose option that may be used by TeraByte support for troubleshooting.
GlobalGeoDisable	0 = Disabled (default); 1 = Enabled See *Settings | Disable* on page 63.
GlobalGeoAlignHS	0 = Disabled; 1 = Enabled (default) See *Settings | Align MBR for BIOS Auto Mode* on page 65.
GlobalGeoAlign2K	0 = Disabled (default); 1 = Enabled See *Settings | Align on 1MiB Boundaries* on page 63.
GlobalGeoAlignVal	This option allows you to specify a custom partition alignment value for all drives. For example, to align partitions on 2MiB boundaries, use GlobalGeoAlignVal=2M. Invalid sizes will be ignored. This option overrides the other global alignment options. By default, this option is not set (a custom alignment value will not be used).
GlobalGeoAlignCylinder	0 = Disabled (default); 1 = Enabled See *Settings | Align on Cylinder* on page 64.
GlobalGeoMBRGeo	0 = Disabled (default); 1 = Enabled See *Settings | Assume Same Target System* on page 64.
GlobalGeoMBRGeoValidate	0 = Disabled; 1 = Enabled (default) See *Settings | Validate Geometry Before Use* on page 65.
GlobalGeoOrgGeo	0 = Disabled (default); 1 = Enabled See *Settings | Use Source Host Geometry* on page 65.
Win7MBR	0 = Disabled; 1 = Enabled (default) See *Settings | Use New Windows MBR* on page 65.
TimeZone	Set to the Formatted Time Zone Identifier. For example: PST8PDT See *Settings | Time Zone* on page 66.
BackGround	Set to the file name of the background image to display on the Boot Menu. The file must exist in the BootIt EMBRM partition. See *Settings | Background* on page 58.
StartSound	Set to the file name of the sound file to play when the Boot Menu is first displayed. The file must exist in the BootIt EMBRM partition.

	See *Settings* | *Sound* on page 58.
MaintPW	This option holds the encoded Maintenance Password, if one is set. See *Settings* | *Maintenance Password* on page 66.
AllowPWChange	0 = Disabled; 1 = Enabled (default) This option is controlled automatically when Users are being used. It is not recommended to manually change this option. See *User Setup* | *Allow Change* on page 67.
Verbose	0 = Disabled; 1 = Enabled (default) This option enables verbose startup on the text screen to print additional information (such as BootIt version, etc.). If the SATA Bias option (BIOSMBRM) is enabled, it will tell the user it's reading the drives.

HD*n*

Individual drive settings are contained in the [HD*n*] section. Note that the *n* is replaced with the number of the drive (as displayed by BootIt BM). For example, [HD2] for the third drive. These sections usually do not exist unless you have configured non-default settings for an individual drive.

UseOrgGeo	0 = Disabled; 1 = Enabled See *Drive Settings* | *Use Original Geometry* on page 50.
UseMBRGeo	0 = Disabled; 1 = Enabled See *Drive Settings* | *Use MBR Geometry* on page 49.
UseValidMBRGeoOnly	0 = Disabled; 1 = Enabled See *Drive Settings* | *Validate MBR Geometry* on page 50.
AlignOnEnd	0 = Disabled; 1 = Enabled; 2 = Enabled + Align End By Resizing See *Drive Settings* | *Align on End* on page 50. See *Drive Settings* | *Align End By Resizing* on page 51.
Align2048	0 = Disabled; 1 = Enabled See *Drive Settings* | *Align on 1MiB Boundaries* on page 51.
AlignVal	This option allows you to specify a custom partition alignment value for a drive. For example, to specify that partitions should be aligned on 2MiB boundaries, use AlignVal=2M. Invalid sizes will be ignored. This option overrides the other device alignment options. By default, this option is not set (a custom alignment value will not be used).
AlignEndHS	0 = Disabled; 1 = Enabled See *Drive Settings* | *Align MBR Ending HS* on page 51.

AlignHSOnTrunc	0 = Disabled; 1 = Enabled See *Drive Settings | Align MBR HS When Truncated* on page 51.
c	The c, h, and s options are helpful when you need to specify geometry values that differ from those assigned by the operating environment. For example, you use these options when you attach a hard drive from another machine to the USB port of another machine to restore the first machine's backup image. Valid values: **C – Last Cylinder**: 0 to 1023 **H – Last Head**: 0 to 254 **S – Sectors per Track**: 1 to 63
h	Valid values are 0 to 254. See c, above.
s	Valid values are 1 to 63. See c, above.
GeoCalc	0=Default, 1=LBA, 2=Large, 3=Normal, 4=Bit-Shift, 5=Device Bit-Shift. The Default and Device Bit-Shift use the device reported geometry, all others are calculated.
UseGlobalGeoSettings	0 = Disabled; 1 = Enabled See *Drive Settings | Use Global Settings* on page 52.

License

The [License] section contains the BootIt BM license information.

User	The user name given with the product key when BootIt BM is purchased. If using the trial version, this option is not used.
ProductKey	The product key given with the user name when BootIt BM is purchased. If using the trial version, this will be set to a trial key.

SVGA/VGA

These sections contain the current color scheme for a given mode and usually do not exist unless you have made changes in Display Settings. Each option controls the color of a specific item. The format is the RGB type (Red, Green, Blue), with each color having a value between 0 and 255. For example: 0,0,0 is Black; 255,0,0 is Red; 128,128,128 is Gray.

The following lists the options and their default color values:

```
ScrollBarBackground=205,202,205
ClientWindowTextLeftSelectedBG=230,226,230
ClientWindowTextLeftSelected=57,68,115
ClientWindowTextSelectedBG=123,157,255
ClientWindowTextSelected=0,0,0
```

```
ClientWindowText=0,0,0
ClientWindowOutline=0,0,0
ClientWindowShadow=123,157,255
ClientWindowHighlight=255,255,255
ClientWindow=255,255,255
ElementText=0,0,0
ElementOutline=0,0,0
ElementShadow=57,68,115
ElementHighlight=255,255,255
ElementFace=205,202,205
GroupText=0,0,0
GroupOutline=0,0,0
GroupShadow=123,157,255
GroupHighlight=255,255,255
GroupFace=180,198,255
MenuTextSelected=0,0,0
MenuFaceSelected=123,157,255
MenuText=0,0,0
MenuShadow=57,85,115
MenuHighlight=255,255,255
MenuFace=180,198,255
TitleBarTextInactive=172,170,172
TitleBarText=255,255,255
TitleBarInactive=82,80,82
TitleBar=0,125,255
Background=0,28,115
```

In most cases, colors can be set more easily using Display Settings.

TBOSBOOT.STR Options

The TBOSBOOT.STR file is located in the BootIt EMBRM partition and contains the list of programs that run when BootIt BM starts. Each line in the file is a program to run, optionally followed by startup parameters. In a normal installation, there are only two lines:

```
MOUSE.COM
BOOTITBM
```

The following parameters can be used with BOOTITBM:

/s	Forces VGA mode (640x480 16-colors). Display Settings will not allow you to change to VESA mode or select any other resolutions. Remove option to switch back. Note that this option overrides the options set in the [Video] section of the INI file. This option can be forced by holding down the Scroll Lock key on startup.
/v	Forces VESA mode. Display Settings will allow you to change colors and resolutions normally.
/vs	Forces verbose startup on the text screen to print additional information (such as BootIt version, etc.). If the SATA Bias option (BIOSMBRM) is enabled, it will tell the user it's

reading the drives.

To specify a parameter, include it after BOOTITBM. For example, a default TBOSBOOT.STR file that forces VGA mode would look like this:

```
MOUSE.COM
BOOTITBM /s
```

Using Terabyte OSDT Pro for BootIt

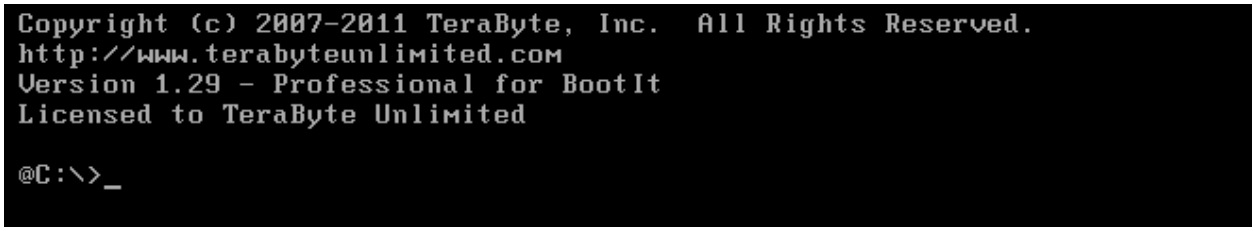
BootIt BM includes Terabyte OS Deployment Tool (TBOSDT) for BootIt. This special version (included only with the purchase of BootIt BM) adds support for working with partitions while still providing the features of the regular Professional version.

TBOSDT for BootIt supports the following operations from either the prompt or a script (TBS file):

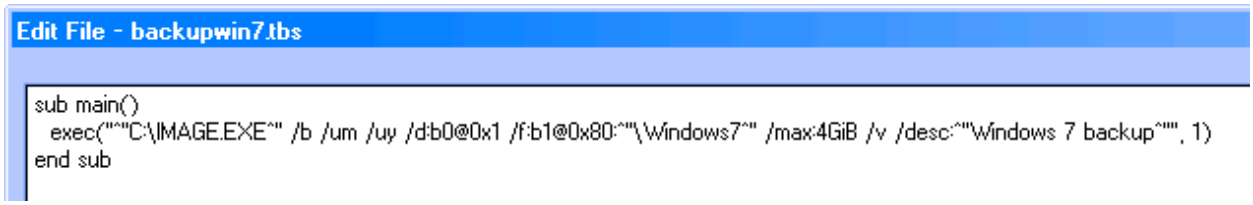
- Add partition
- Delete partition
- Slide partition
- Resize partition
- Copy partition

TBOSDT for BootIt is automatically installed with BootIt BM if **Scripting Support** was included when the setup media was created.

To run TBOSDT, simply click the Scripting icon on the BootIt BM desktop or press **P**.



Script files can be accessed easily from the BootIt BM partition using the text editor available on the desktop (click the Text Editor icon or press **X**). A sample backup script saved from Image for Dos is shown below:



The script can be run from the prompt using the runtbs command:

```
runtbs backupwin7.tbs
```

Script files can also be run by clicking the Run icon on the BootIt BM desktop (or by selecting Run from the Utilities menu) and then selecting the file.

Additionally, scripts can also be run using BootNow™. For example, to run the above script from Windows, create a shortcut to BootNow with the following parameters: 1/run=backupwin7.tbs

Running the shortcut will restart the computer, run the script file, and then boot to first menu item. See the README file included with BootNow for details and additional examples.

For more information on using TBOSDT for BootIt, please refer to the TBOSDT User Manual.

Obtaining Technical Support

The primary support communication method will be use of online services. The most recent versions of software and information will be available on the TeraByte Unlimited Web site:

www.terabyteunlimited.com

Registered users that require technical support should try to use the following email address as the primary communication method:

support@terabyteunlimited.com

Telephone support is also available as needed.

Pre-sale information and technical support for unregistered users is available by email only.

In all cases, registered or not, TeraByte Unlimited reserves the right to refuse any communication method that would incur a cost.

Ordering and Licensing BootIt Bare Metal

If you are using the trial version of BootIt BM and then to continue using it past the 30-day trial period, you must purchase a full-use license. It is illegal to continue using the trail-use version beyond the trial period.

To purchase the full-use license, use one of the following methods:

- Complete and submit the order form on page **Error! Bookmark not defined.**.
- Visit: **www.terabyteunlimited.com/purchase-bootit-bare-metal.htm**

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