

BootIt 2

Copyright © 1996, 1997 TeraByte Unlimited. All Rights Reserved.

User documentation

Revision 2.13

Printed July 3, 2025

ASP Member

TeraByte Unlimited
258 N. Saturmino Dr.
Palm Springs, CA 92262
TeraByte@TeraByteUnlimited.com
<http://www.TeraByteUnlimited.com>

Ombudsman Statement:

TeraByte Unlimited is a member of the Association of Shareware Professionals (ASP). ASP wants to make sure that the shareware principle works for you. If you are unable to resolve a shareware-related problem with an ASP member by contacting the member directly, ASP may be able to help. The ASP Ombudsman can help you resolve a dispute or problem with an ASP member, but does not provide technical support for members products. Please write to the ASP Ombudsman at 545 Grover Road, Muskegon, MI 49442-9427 USA, FAX 616-788-2765 or send a CompuServe message via CompuServe Mail to ASP Ombudsman 70007,3536.

Definition of Shareware:

Shareware distribution gives users a chance to try software before buying it. If you try a Shareware program and continue using it, you are expected to register. Individual programs differ on details – some request registration while others require it, some specify a maximum trial period. With registration, you get anything from the simple right to continue using the software to an updated program with printed manual.

Copyright laws apply to both Shareware and commercial software, and the copyright holder retains all rights, with a few specific exceptions as stated below. Shareware authors are accomplished programmers, just like commercial authors, and the programs are of comparable quality (In both cases, there are good programs and bad ones!). The main difference is in the distribution. The author specifically grants the right to copy and distribute the software, either to all and sundry or to a specific group. For example, some authors require written permission before a commercial disk vendor may copy their Shareware.

Shareware is a distribution method, not a type of software. The Shareware system makes fitting your needs easier, because you can try before you buy. Also, because the overhead is low, prices are low. Shareware has the ultimate money-back guarantee - if you don't use the product, you don't pay for it.

LIMITED WARRANTY

THIS SOFTWARE AND MANUAL ARE PROVIDED FOR EVALUATION ONLY, ON AN "AS IS" BASIS. TERABYTE UNLIMITED DISCLAIMS ALL WARRANTIES RELATING TO THIS SOFTWARE, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER TERABYTE UNLIMITED NOR ANYONE ELSE WHO HAS BEEN INVOLVED IN THE CREATION, PRODUCTION, OR DELIVERY OF THIS SOFTWARE SHALL BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE SUCH SOFTWARE, EVEN IF TERABYTE UNLIMITED HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR CLAIMS. THE PERSON USING THE SOFTWARE BEARS ALL RISK AS TO THE QUALITY AND PERFORMANCE OF THE SOFTWARE.

This agreement shall be governed by the laws of the State of California and shall inure to the benefit of TeraByte Unlimited and any successors, administrators, heirs and assigns. Any action or proceeding brought by either party against the other arising out of or related to this agreement shall be brought only in a STATE or FEDERAL COURT of competent jurisdiction located in Riverside County, CA. The parties hereby consent to in personam jurisdiction of said courts.

Trial Use License

BootIt is NOT a public domain program. It is copyrighted by TeraByte Unlimited. This software and accompanying documentation are protected by United States copyright law and also by international treaty provisions.

TeraByte Unlimited grants you a limited license to use this software for evaluation purposes for a period not to exceed thirty days. If you continue using this software after the thirty-day evaluation period, you MUST make a registration payment to TeraByte Unlimited.

You may not use, copy, rent, lease, sell, modify, decompile, disassemble, otherwise reverse engineer, or transfer the licensed program except as provided in this agreement. Any such unauthorized use shall result in immediate and automatic termination of this license. All rights not expressly granted here are reserved to TeraByte Unlimited.

Limited Distribution License

The following may distribute BootIt, completely unaltered, without further permission; ASP Approved Vendors in good standing. Non-ASP member vendors must request permission prior to distributing this package.

Permission to distribute the BootIt package is not transferable, assignable, saleable, or franchisable. Each vendor wishing to distribute the package must independently satisfy the terms of this limited distribution license.

U.S. Government Information: Use, duplication, or disclosure by the U.S. Government of the computer software and documentation in this package shall be subject to the restricted rights applicable to commercial computer software as set forth in subdivision (b)(3)(ii) of the Rights in Technical Data and Computer Software clause at 252.227-7013 (DFARS 52.227-7013). The Contractor/manufacturer is TeraByte Unlimited, 258 N. Saturmino Dr., Palm Springs, CA 92262.

TeraByte Unlimited may revoke any permissions granted here, by notifying you in writing. All rights not expressly granted here are reserved to TeraByte Unlimited.

How To Register:

If you continue to use BootIt beyond 30 days you must register it. It is illegal to continue using BootIt without registering. Registering will enable the password feature which requires a user defined password to exit the boot menu and enter the maintenance menu. It also allows you to customize the message displayed in the box below the main menu as well as removing any registration reminder prompts. Nag strings are also removed.

New software or future versions of software contained with the BootIt package may be created and sold as a separate product, which will only be available to registered BootIt users.

When you register the software you will be sent a registration key, name, and number. The registration name will be the name on the order form. It must be either your name or the name of your company.

The registration price depends on what you order and how it's delivered. The base price is \$39.95. See the order form for details.

For your convenience, there are two *order services* you can use to register. You can also register on-line via the TeraByte Unlimited web site!

- 1) You can use the CompuServe Shareware Registration Service (GO SWREG).
Registration Number: 5923
- 2) You can order with MC, Visa, Amex, or Discover from Public (software) Library by calling 800-2424-PsL or 713-524-6394 or by FAX to 713-524-6398 or by CIS Email to 71355,470. You can also mail credit card orders to PsL at PO Box 35705, Houston, TX 77235-5705. **Product Number 14938.**

THE ABOVE NUMBERS ARE FOR CREDIT CARD ORDERS ONLY. IT IS AN ORDER SERVICE. ALL REQUESTS FOR INFORMATION MUST BE DIRECTED TO TERABYTE UNLIMITED WHICH CANNOT BE REACHED AT THESE NUMBERS.

Any questions about the status of the order or shipment, refunds, registration options, product details, technical support, volume discounts, dealer pricing, site licenses, non-credit card orders, etc., must be directed to TeraByte Unlimited, (760) 325-0892, TeraByte@TeraByteUnlimited.com, 258 N. Saturmino Dr., Palm Springs, CA 92262.

We will be notified the day of your order and will e-mail/ship the registration information directly to you.

Support Policy:

The primary support communication method will be use of on-line services. The most recent versions of software and information will be available on the TeraByte Unlimited web site.

(<http://www.TeraByteUnlimited.com>).

Registered users that require technical support should try to use e-mail as the primary communication method. Telephone support will also be given as needed.

Pre-sale information for unregistered users will be given via e-mail only. No technical support is offered.

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

System Requirements:

100% IBM compatible personal computer with an i80386 compatible microprocessor and at least one diskette drive and one hard drive. 4 MB free space to create the installation diskette and 10 MB free space for installation.

Before you Begin

TeraByte Unlimited has taken every effort to make BootIt 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 FDISK). If you ignore this warning you are taking a serious risk of data corruption.

Before using BootIt 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 disk, such as a DOS boot diskette, that can be used to boot your system should something ever go wrong. You should configure the diskette to give you all the function you may need. This includes adding any drivers or utilities as well as configuring the configuration files.

To create a DOS boot diskette use the DOS *FORMAT A:/S* command. 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 ROM drive or another device then be sure to copy the required drivers to the diskette.

What BootIt Does:

This software is based on the Extended Master Boot Record (EMBR) specification, which was based on the need to standardize that area of the hard drive.

BootIt consists of all the components needed by the EMBR. This includes the Extended Mater Boot Record Initiator (EMBRI), Loader (EMBRL), and Manager (EMBRM).

This allows you to configure the boot process to fit your needs. You can have up to 255 partitions, reference up to 255 boot files and load up to 255 low level drivers.

The standard MBR format is still used by operating systems. It is limited to having a maximum of four primary partitions. Some file/operating systems worked around this by allowing one partition to be sub-divided into several smaller logical partitions (volumes). To support the current MBR, BootIt allows you to select which partitions you want in the MBR. This is accomplished by allowing menu items to be created that define the boot partition, boot file (for OS loaders), parameters (for OS loaders), and MBR partitions for all hard drives that contain an EMBR.

BootIt also includes a FAT and FAT32 loader. This loader installs in a FAT/FAT32 partition and allows you to select a boot file in the root directory of the partition. This makes it possible to boot multiple operating systems from the same FAT partition.

Limitations:

BootIt relies on the BIOS for processing disk functions. If your computer BIOS limits access to the hard drive for any reason and no driver is available to correct the limitation, BootIt will also be limited. BootIt Supports the BIOS LBA Mode for large drives. Int 13h extensions and BIOS large mode are not currently supported.

Information for owners of BootIt 1.x

BootIt 2.0 will convert your version 1.x partition data when the EMBR is created.

If you used BootIt to set the hard drive parameters it will use that information during installation. You no longer have the option to actually set the hard drive parameters; when the EMBRM is created the current settings are stored. When the system loads the EMBRL checks if the current settings match the settings in the EMBR, if not, the EMBRL attempts to set the drive parameters to match the EMBR settings. This is done on hard drives 0 and 1 only.

Group information is not retained, nor is the original home entry of the partitions. This means you may have to find the home entry by trial and error when creating the menu items. Most file/operating systems don't care which MBR partition entry it resides in, but, some do.

All partitions should be created using BootIt. The other allocation techniques have been removed.

As a registered user of BootIt 1.02 you are entitled to purchase BootIt 2 for \$22.00. Shipping is free if you include your e-mail address otherwise add \$9.95 for shipping and handling. The BootIt API documentation is sold separately and is not included with BootIt 2. The only registration method available for the upgrade is to send a check or money order along with your e-mail address, registration name and number to TeraByte Unlimited, 258 N. Saturmino Dr., Palm Springs, CA 92262.

Thank you for you continued support. Your honesty keeps the shareware distribution method working!

Getting Started

- 1) Make sure you have read the “Before You Begin” section of this document.
- 2) If you need to create a system diskette (such as a DOS boot diskette or Windows 95/98/NT Startup Diskette), do so now.
- 3) Backup all the data on all of your hard drives.
- 4) Create the installation diskette by following the steps in the installation section of this document.
- 5) Install/upgrade BootIt on your hard drive by following the steps in the installation section of this document.
- 6) Read the “BootIt 2 overview for first time users” section of this document.
- 7) Read through the “EMBR Manager” section of this document.
- 8) If you have existing partitions, use the “BootIt Boot Menu Configuration” utility to configure a menu item that uses your existing partitions.
- 9) If you are going to activate the FAT multi-boot option on a partition, use the “FAT multi-boot activate/deactivate” utility.
- 10) Refer to the Operating System section at the end of this document for notes.
- 11) Refer to the “Sample Configurations” section at the end of this document for some examples of how you could setup your system.

Installation:

Installation of BootIt 2 is a two step process. First you will create the installation diskette, then you will use that diskette to install BootIt to your hard drive. Visit www.TeraByteUnlimited.com to make sure you have the latest version of this software as well as for any additional information/help.

Before beginning the installation of BootIt make sure you have read the "Before You begin" section of this document.

The following instructions will guide you through the first step of the installation process. This step creates the installation diskette. Windows users may use the File Manager and Win95 users the Windows Explorer to execute the steps listed.

You will need one formatted diskette that matches the floppy drive A: of the computer that will have BootIt installed. Do NOT use an existing BootIt installation diskette. Information is added to the diskette during installation of BootIt. If you overwrite that information you may not be able to recover from certain potential problems. If you are installing on multiple machines, each machine should have its own diskette. You will also need a separate registration number for each machine.

- 1) Extract the BOOTIT.ZIP file to its own directory.
- 2) Change to the directory used in step 1.
- 3) Type BOOTIT then press <enter> or Windows users can double click on BOOTIT.EXE.
- 4) If you have accepted the terms, select the correct diskette drive from the menu and press <enter>. You will be prompted to insert the diskette and press enter when ready.
- 5) Insert the diskette in to the correct diskette drive and press enter. After about a minute it will confirm either that the installation diskette was created or that the diskette is bad.
 - 6) If the diskette was bad, get a new formatted diskette and repeat the appropriate steps otherwise you're done with step one.

Once you have successfully created the installation diskette you can proceed with step two on the next page.

The following instructions will guide you through the second step of the installation process. This step installs BootIt to your hard drive.

If you are upgrading an existing version, skip to the section below marked "Upgrading".

- 1) Make sure your system boot up sequence is A:/C: and not C:/A:. This information is found in the CMOS setup which is usually initiated by pressing a certain key when the computer is first starting up. Also, disable the boot sector virus protection option. If you leave the virus protection option enabled, it will just get in the way.
- 2) Shut down and turn off your computer.
- 3) Insert the BootIt installation diskette in your A: drive then turn on your computer.
- 4) If your system boots up as it normally does, see step 1, otherwise BootIt will be loaded from the diskette. It will first run through some quick checks on your system. If any potential problems are found you will be notified otherwise the process will continue until you reach the EMBRM main menu.
- 5) From the EMBRM menu select "Hard Drive 0".
- 6) You will get a message stating that the EMBR doesn't exist and the option to create it. Answer with "Y" to create the EMBR. When the EMBR is created the current MBR and EMBR area are backed up to a file called BACKHD0.
- 7) Verify that your current partition information was added to the MPT. If for some reason the partition information did not get added to the MPT, press the escape key then the enter key to abort the EMBR creation.
- 8) Create a partition for BootIt. Either tab to "Add New Entry" and press enter or tab to the MPT and press the insert key. If you choose "Add New Entry", it will ask for the type of entry to add; choose P. Next it allows you to choose the unallocated block from which to create the partition. If you do not have enough unallocated space, continue with the next step, otherwise, choose whichever block you want if you have more than one and press enter. Next it will ask you for the size of the partition. The recommended partition size is at least 10MB although you can use a smaller partition size such as 5MB. Once you enter the partition size you want, the partition details dialog will be displayed. Name the partition "BootIt EMBRM" and assign it the file system id. 223 then press enter to accept the information entered.
- 9) Save the EMBR. To save the EMBR tab to "Save" and press enter.

- 10) You will automatically return to the main menu. If you did not have enough free space to create the partition in step 9 and have more than one hard drive, you can choose a different hard drive and return to step 6. Otherwise, continue to the next step.
- 11) Select Utilities and press enter.
- 12) If you created the EMBRM partition in step 9, continue to step 13. If you did not have enough space to create the partition in step 9, you will need to shrink one of your existing partitions. Run the FAT Away utility and reduce the size of one of your FAT partitions. Once you have reduced the size of a partition, press escape until you return to the main menu then select "Hard Drive 0" and return to step 9.
- 13) Select "FAT Format" from the menu. Format the partition you created in step 9 then return to the utility menu.
- 14) Select "BootIt Install". Choose the hard drive/partition that you created in step 9 then return to the utility menu.
- 15) Select "Install EMBRI/EMBRL" and complete the installation of the EMBRL.
- 16) Press Escape until the system tells you to press enter to reboot. Remove the diskette and press enter to complete the installation.
- 17) Congratulations, you have just completed the installation of BootIt 2. The rest of this document is devoted to explaining how to configure BootIt 2 for your system.
- 18) Create a copy of this diskette and keep it in a safe place. You will need the installation diskette to recover from any problems or situations that may arise in the future. Use the disk copy feature of one of your operating systems to create a backup. If your installation diskette is ever updated or new one used you should update your backup diskette also.
- 19) If your BIOS has the ability to change the boot sequence to C:/A: it is recommended that you do so. It will help you remember to use the right shift key to boot from a diskette (needed when BootIt is setting the hard drive parameters) as well as reduce the chance of contracting certain types of viruses.

Upgrading

- 1) Make sure you have all the utilities you may need. Read through these steps first (esp. step 12). You may need to get a utility from www.terabyteunlimited.com. If you need a utility, download it and copy it to the installation diskette before continuing.
- 2) Make sure your system boot up sequence is A:/C: as it was when you originally installed BootIt 2.
- 3) Turn your system off.
- 4) Insert the installation diskette in drive A: and turn on your computer.
- 5) When the menu is displayed, select utilities then "BootIt Install".
- 6) Select the hard drive that you have BootIt installed on.
- 7) Choose the partition you have BootIt installed in.
- 8) Once the copy process begins you will get a warning message because files already exist. Choose 'A' to tell it to replace all the files without asking. By default the installation diskette does not have a menu configuration file or color file, therefore, your current settings won't be altered.
- 9) You'll be returned to the utility menu. Select "Install EMBRI/EMBRL". This will update the EMBRI and EMBRL.
- 10) If Applicable, Select "FAT Multi-Boot Activate/Deactivate" and reactivate to update the programs. If you are upgrading from version 2.00 or 2.01, be sure to read the upgrade notes in the FAT Multi-Boot Activate/Deactivate section.
- 11) If upgrading from a version prior to 2.10 and have formatted partitions with the FAT Format utility, run the "Update OEM fields - run once" utility. If you run it multiple times it won't hurt but won't really be doing anything. You will need to visit the www.terabyteunlimited.com to get the utility.
- 12) If upgrading from a version prior to 2.12 and have multi-boot partitions configured then run the "Update Multi-Boot Info -run once" utility. You should only run this utility only once. If you are upgrading to a release greater than 2.12 then you must obtain the utility from www.terabyteunlimited.com.

Upgrade History:

Ver 2.00 Initial Release.

- Ver 2.01 Added wait for drive ready option, added active configuration notice, fixed BootIt 1.x conversion, other misc. To utilize the active configuration notice, set the parameter string length of the BootIt EMBRL driver to 41. (You'll need to press Alt-A in the name field to access the information) Be sure you don't change any other fields or your system will not boot correctly.
- Ver 2.02 Updated the entire system. Updated EMBR specification to version 970101. Format and FAT Away aggressively calculates the Cluster/FAT Size, Format will create/format volumes in extended partitions, change the way the FAT Multi-boot works by coping files instead of renaming them, created the Edit Group utility to be used with the new FAT Multi-Boot, Added MBRCheck to check for any changes to the MBR and apply it to the EMBR, Added OS Check to automatically recognize new FAT installations and changes, etc.
- Ver 2.03 Fixes a "lock up" (loop) problem and FAT Type error message in the FAT Away utility. Fixes the Boot Menu which was stating that it could not find a partition that it really did find.
- Ver 2.04 Changed the FAT Away utility to be a FAT sizing utility. Added FAT32 (type 11) formatting to the Format utility. Added F1 help in the Menu Configuration utility. Changed Utilities to utilize i386 instruction set. Other misc.
- Ver 2.05 Fixed Format utility to not complain about type 223 partitions. Also added OS menu option to the Edit Group utility when running in auto mode. (No other changes)
- Ver 2.06 Fixed problem with the installation utility. Reworded Prompt in MBR Check. Updated PreInscck to check if EMBR area free.
- Ver 2.07 Added FAT32 to FATAway utility. Changed wording in EMBRL and MBRCHECK. Changed FAT32 4K to 8K cluster size conversion from 4GB to about 8GB.
- Ver 2.08 Corrected error in FATAway utility which damaged the FAT when converting to FAT32 and cluster size decreasing. Also corrected password prompt to not pop up (on reentry to EMBRM) when no password is defined.
- Ver 2.09 Corrected the value entered into the hidden sector field of volumes formatted with the FAT Format utility. Changed the name in the BPB from BOOTIT20 to BOOTIT to prevent OS/2 from getting confused. Added the ability to boot a volume in an extended partition.
- Ver 2.10 Add code to FATAway to make sure Root Dir. does not become too large, also fix a problem which caused it to increase the root dir. where it could have reduced it. Changed the FAT Format OEM ID Field to use BOOTITXX, Having it set to BOOTIT caused all version of DOS to incorrectly mount the partition if the root dir. was not at 512. The incorrect mounting made it look as all data was corrupted. Any attempt to use the partition for writes, did corrupt the partition. Fixed a potential problem with the CHS 2 LBA conversion. Also Add new feature to have custom menus for different people. Other misc. too, including utility to change the OEM ID fields.
- Ver 2.11 Updated EMBR specs to indicate partitions which must be booted as hard drive zero. Added code to support the new spec by swapping hard drives.
- Ver 2.12 Added Directory Support. The Edit Group utility/Multi-boot feature now stores all files in a directory group beneath a directory \BOOTIT. Also added sounds to startup menu and ability to set a "default" menu configuration.
- Ver 2.13 Added FAT32 to the API which now allows BootIt to multi-boot within a FAT32 partition if the OS lets you choose directories for its files. Changed MB to be calculated as 2048 sectors instead of 2000. FAT Format tells you the cluster size it creates. Other miscellaneous changes.

BootIt 2 overview for first time users

To understand BootIt lets first see how your system boot process normally works then what BootIt and the EMBR changes.

The first sector of your hard drive is called the Master Boot Record or MBR. The MBR contains two things, a table that defines the partitions on your hard drive (called the partition table) and the code to transfer control to the first sector (called the boot sector) of one of the partitions. The partition table can contain up to four entries. Each entry contains information on where the partition begins and ends as well as a flag to mark the active (or bootable) partition and the type of file system being used in the partition.

When control is given to the code in the MBR, it will look at each of the four partitions for the one that is marked active. It will load the boot sector of that partition and transfer control to the boot sector code.

Boot sectors are operating and file system specific. The area for the code in the boot sector has just enough space to look for a certain file, read it in and transfer control. The name of the file is hard coded in the boot sector code. For instance, the boot sector for MS DOS will look for a file called IO.SYS.

There is a special type of partition called an extended partition. This type of partition contains logical partitions called volumes. Each volume is preceded by a partition table in the same format as found in the MBR. This table contains one entry for a "normal" primary partition and another extended partition entry that "chains" to the next logical volume. The last volume only contains the primary partition information.

What the Extended Master Boot Record (EMBR) specification does is extend the function of the current MBR type of processing.

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 or MPT. It is used in lieu of the partition table. For backward compatibility with existing operating systems and disk utilities, BootIt allows you to choose partitions from the MPT and place them into the partition table. Operating systems and utilities only see what is placed into the partition table (At some point when an operating system is loading, it will look at the MBR partition table and assign access to any of the partitions/volumes it recognizes). Therefore, you can not use any utilities that will expand or move a partition if it only recognizes the MBR partition table. The only time you can use such a utility is if you only have

four partitions (total) in the MPT and have them all loaded in the MBR partition table at the time the utility is run.

The table in the EMBR that contains boot file information is called the Master Boot File Table (MBFT). This information can be used by boot sector code to dynamically load a file. As was stated earlier, traditionally boot sector code has the boot file name hard coded.

The last table in the EMBR that contains information on drivers is called the Master Driver Table (MDT). The EMBRL is itself considered a driver. Other drivers might include replacement BIOS routines to give your system abilities that were not originally included.

Your system still starts the same way. Control is given to the code in the MBR. Under the EMBR specifications this code is called the EMBR Initiator. Instead of looking at the partition table in the MBR the EMBRI finds the EMBRL in the EMBR and transfers control to it.

The EMBRL then uses its parameter string, MDT, and MPT to figure out what it should do. Eventually, it loads the boot sector of one of the partitions and transfers control just like the MBR originally did.

If the code in the boot sector is compatible with the EMBR (such as the FAT multi-boot feature included with BootIt), it will be able to dynamically load a boot file by using the information in the MBFT. Otherwise, the boot sector code processes itself as normal.

EMBRL Options

The EMBRL included with BootIt will process the options as defined in the EMBR specification. It will also allow you to boot from a floppy diskette drive.

When the EMBRL begins, it will display a message for two seconds to let you know you can hold down the right shift key to boot from the floppy drive. You would want to do this if the hard drive parameters are set by BootIt or your system requires a driver to extend its function. The BootIt EMBRL will allow booting from either diskette drive. If it does not find any diskette in the current A: drive it will swap the drives.

During the two second message that notifies you on how to boot from the floppy diskette you can also use the following keys. Hold down the left shift key to not load any drivers. Hold down the left control key to only load drivers that are "proven". Hold down the left alternate key to only load drivers that are "required". You can mix the key combinations.

The driver parameter string for the EMBRL consists of the following information. The parameter string contains ASCII values.

Byte zero contains the number of seconds to wait before automatically repeating the last boot. For example entering '3' will wait three seconds.

Byte one contains the boot drive. This is updated automatically by the EMBR Manager explained later.

Byte two contains the last drive number that must be ready before continuing the EMBRL code. For example if you have two hard drives and place a '1' in this byte, the EMBRL will check if your second drive is ready. If it is not, then the EMBRL will wait 5 seconds and then automatically reset your computer.

Byte three contains boot options. Value '1' means that the floppy diskette drives should be swapped so that the A: is B: and B: is A:. Value '2' will automatically boot a diskette if it is in the A: drive. This would be used if you set your CMOS boot sequence to be C:/A:. You may want to use this if BootIt sets the hard drive parameters or your system requires that a driver be loaded at every boot. Value '4' causes the EMBRM to be loaded on every boot. You can combine the values by adding. For example if you want to force the EMBRM to load and swap the floppy diskette drives, you would enter a value of '5'.

EMBR Manager

To enter the EMBR Manger, press F10 at the Boot Menu. The EMBRM is used to configure the EMBR.

Once you are at the EMBRM main menu you will be able to choose which hard drive you want to work with. You can also choose the utility menu or change the system colors or update the message in the box (if you have registered).

Working with the EMBR

After you choose the hard drive you want to work with on the main menu, you will either be presented with the current EMBR information or asked if you want to create the EMBR. If you are creating a new EMBR then you will be presented with either a blank EMBR or an EMBR with your existing partition information.

On this screen you have a list box group for each of the three tables and a selection group below the tables that contains "Add New Entry", "Save", and "Cancel". To move between the groups use the tab key. You cannot enter a list box that is blank.

To edit an existing entry, tab to the appropriate list box and use the arrow keys to select it. Press the enter key to edit the entry or the delete key to remove it.

To add an entry to any one of the tables, either tab to that table and press the insert key or choose the "Add New Entry" from the selection group. If you use the selection group it will ask what type of entry you are adding. Enter a P for a partition, B for boot file, or D for driver.

If you would like to change the order of any of the entries, highlight the entry you would like to move then hold down the control key while using the up/down arrow key to move it.

Note that when working with the EMBR, nothing is updated on the hard drive until you choose save from the selection group.

When adding a partition entry, you will be given a choice of which unallocated block you want to use for the new entry. After that, you enter the size (in megabytes) of the new partition (or enter zero to use the entire unallocated block). Finally you will be prompted to enter the name of the partition, assign a file system id, indicate if hard drives must be swapped for booting, and mark if the partition is capable of being booted.

The name you enter for the partition should be unique and is whatever you want it to be. The file system ID must match that of the one you want to create (see the table below). Use the space bar to check/uncheck the swap and bootable option. The swap option should only be check if the partition is not on the first hard drive

and hard drives must be swapped for proper boot (like booting DOS from the second hard drive). The bootable option is only used keep the partition from showing up when you configure the menu options (explained later). Normally you would mark all primary partitions bootable except for extended partitions.

ID	File System	ID	File System
01	DOS Primary 12-Bit FAT (1-15MB)	12	FAT32 - LBA
02	XENIX	14	FAT16 - LBA
03	XENIX	15	Extended FAT - LBA
04	DOS Primary 16-Bit FAT (16-32MB)	131	Linux
05	DOS Extended FAT	219	Concurrent DOS
06	DOS Primary Large FAT (>32 MB)	223	BootIt EMBRM
07	NTFS/HPFS		
09	Coherent		
10	OS/2 Boot Manager		
11	FAT32		

When adding a boot file (definition) you will be prompted to enter the boot file name, number of sectors to load, load segment, code segment, code offset, parameter string length, and parameter string.

The boot file name is the name of a file. It should include any necessary spaces. For example, if you are defining a boot file for a FAT partition it should be 11 characters long. EMBR compatible boot sector code uses the boot file definition to load it.

The other information (sector count, load segment, etc.) depends on what type of boot file it is. If the boot file was created by capturing boot sector code then the definition would be as follows. Load Count=1, Load Segment=7C0, Code Segment/Offset=0 7C00.

The parameter string is used by EMBR compatible boot sector code, therefore, you must consult the documentation include with the code. For parameter string instructions on the BootIt Multi-Boot option see that section of this document.

If you move or add an entry to the MBFT then you should select an entry from the Boot Menu (explained later) and not use the escape key (to boot). If you hit escape it won't update the partition to point to the correct MBFT entry if that entries position had changed.

When adding an entry to the MDT it will ask you if you have an installation diskette. If your EMBR driver came on a diskette answer yes and follow the instructions it will automatically update the MDT entry. If you are manually creating an entry you must consult the information that came with the driver.

Working with Utilities

When you choose utilities from the EMBRM main menu you will be presented a list of available utility programs. Each available utility is an independent program much like DOS COM files.

Each utility includes a short description. Highlight the utility you are interested in and press the F1 key for more detailed information, Delete key to remove the utility, or enter to run the utility.

To add a new utility press the insert key. It will prompt you to insert the utility installation diskette. If you want to re-install one of the utilities included with BootIt, you can insert your BootIt installation diskette.

BootIt includes several different utilities which are discussed below. All of the utilities allow you to use the escape key to back up one level.

Backup/Restore

This utility will backup all the EMBR information on all hard drives by creating a file in the EMBRM partition. It will then ask if you want to backup the EMBRM partition to a floppy diskette. It will also restore the information from a backup diskette to the partition on the hard drive as well as let you select the EMBR backup file to restore on a hard drive.

You should use this utility whenever you make changes to your partition information.

During the restore of the EMBRM files it will prompt if existing files should be overwritten. The choices are Y to replace this file only, N to not replace this file only, A to replace all files, or + to only add files that don't already exist.

BootIt Boot Menu Configuration

This utility is used to configure the BootIt Boot Menu that is displayed (by default, once a menu entry has been created) on each boot of the computer.

The first time you enter the utility it will automatically begin to insert a new entry, otherwise, it will list the current entries that exist.

To insert a new menu entry; make sure you are in the Boot Menu Description list box and press the insert key. It will prompt you for the description of the entry to be displayed on the Boot Menu. Once you have entered the description it will add the entry to the list. All items will be blank except (for your convenience) the parameter string which will retain the value that was there when you pressed insert.

To update the values in one of the entries, highlight it and press the tab key to move from group to group.

The first group you will come to after the description is the boot drive. Enter the hard drive number that contains the partition that you want this menu entry to boot when it is chosen from the Boot Menu.

Next you can choose the partition that should be booted. Press Enter to select the partition from a list. Only partitions that are marked bootable will show up in this list. If you leave the partition name blank then this entry will boot from the floppy diskette drive. It will first look at A: then B:.

Third, if the partition you choose is a FAT multi-boot partition you will need to select the name of the boot file that the boot sector code of the partition should load. You can press the enter key to select the boot file from a list.

Now you can enter any necessary parameter string information that should accompany the boot file. The information is used by the boot sector code, so that documentation will tell you how to configure the parameter string. Notice that the maximum length of the parameter string is retrieved from the Boot File you chose. If the existing parameter string was longer than what the Boot File was configured for, it will be truncated.

Finally, you can enter which partitions should be placed in the MBR for each of the drives you have. You will need to make sure that the partition you choose to boot resides in the MBR. Each of the groups represent the MBR partition table of each hard drive. You have the flexibility to choose which partition goes in each entry of the partition table. Use the up/down arrows to highlight a position and press the enter key to select a partition from a list. You should make sure that you do not add the same entry twice! If you leave an entire MBR partition table blank then that partition table will not be altered when this menu entry is selected from the Boot Menu.

To delete an entry, highlight it then press the delete key.

If you want to change the order of any of the menu entries, simply highlight the entry you want to move, hold down the control key on your keyboard and use the up/down arrow keys to move it.

To change the maintenance password you can press the F6 key from the description list box. This is the password (registered version only) that is required to exit the Boot Menu and configure the system.

Once you have completed your changes you can press F10 to save and exit or press escape then enter to abort all changes you made.

If you want to keep people from booting certain menu configurations you can create additional menus. If any "user" menus are created then only user menus will be used otherwise the AutoMenu will be used.

Each time you enter the menu configuration utility the AutoMenu is selected. To create or load a new menu, press the Alt-L key. A list of already defined user menus are displayed. If there are no menus, you are prompted for the name of a new one to create. Creation of a new menu always copies over the currently loaded menu as the starting point of the new menu.

To create a new menu when there is a list of existing user menus, press the Insert key. To delete a menu from the list, highlight it and press the delete key. To return to the AutoMenu, press the home key. To load a menu, highlight it and press the enter key.

When a user menu is being defined, you can assign a password to that menu by pressing the F6 key. If the AutoMenu is the loaded menu, then using F6 to define a password defines the maintenance password which is the password that is needed when F10 is pressed from the Boot Menu. Remember that the maintenance password is only activated when BootIt is registered.

A new feature of BootIt is the ability to select a "default" menu configuration. Normally when you boot your system to the Boot Menu, BootIt will highlight the last menu configuration selected and start a count down to "quick boot" that partition. Now if you create a menu description that begins with an asterisk (*), BootIt will highlight that configuration every time and start the count down. It will "quick boot" if the last configuration booted was the default configuration; otherwise, it will do a full boot.

Selecting a default configuration will allow the time out to work with user defined menus. Because BootIt will quick boot if the name of the last menu configuration has the same name as the default configuration, for security reasons, you will want to make sure that no two user menus have the same menu description which boot different configurations.

BootIt Install

This is the utility that updates certain information and copies the files from the diskette to the hard drive. It also updates the floppy diskette with certain information.

FAT Away

Use the FAT Away utility to reduce the size of a type 1, 4, 6, or 11 type FAT partition. The current version does not recognize extended partition volumes. It also doesn't allow you to move partitions to make room for expansion.

To use this utility, you first select the hard drive that contains the partition you want to resize. Then a list of recognized partitions will be displayed. Select the partition you want to resize.

A dialog box will appear with the name of the partition, the current size, the data size, and an input box for you to input the new size. Note: The data size is the size the partition must be to contain the last cluster of data.

Key in the size you would like the new partition to be (in MB).

The process to change the size of your partition may result in fragmented files. You should run your favorite FAT defrager program after the partition is resized. Also, if you have a Windows permanent file, it will probably complain and want you to delete and recreate it. You can go ahead and do that or change to use a temporary file prior to running the FAT Away utility.

If you are converting a partition from or to FAT32 you will need to reinstall the boot sector code. To do this, make sure you have a bootable diskette that supports the FAT type you are converting to and that the command to recreate the boot sector is on the diskette. For Microsoft operating systems you will need to use the SYS command. Also, the only Microsoft operating system that supports FAT32 is the OSR2 version of Windows 95 and Windows 98. You can create a startup diskette in Windows 95/98 by running add/remove programs from the control panel then choose the Startup Disk tab and finally click the Create Disk button.

FAT Format

This utility will format type 1, 4, 5, 6 and 11 FAT partitions.

First you select the hard drive that contains the FAT partition you want to format. Next, you choose the partition from the list. If it's a type 1, 4, 6, or 11 partition, it will display a dialog with the partition name and a warning that all data on the partition will be deleted if you continue.

If it is a type 5 (extended) partition, you will be presented with a list of volumes in the partition. If no volumes exist, it will ask if you want to create one. Volumes with a [F] next to them appear to be formatted and [U] means unformatted.

To format a volume, highlight it, and press the enter key. A dialog will be displayed with the volume number and a warning that all data on the partition will be deleted if you continue.

If you want to create a new volume, press the insert key. The process of creating the volume is the same as adding an entry to the MPT. A volume is normally added to the end of the list, but if you deleted volume 0 (at any time (current or in the past)) and create a new volume in the first block of unallocated space, the new volume will be Volume 0.

If you want to reorder the volumes (change the drive letters), you can for all volumes except for the "true" volume 0. The true volume 0 will always be volume 0. Otherwise, to move a volume, highlight the volume you want to move then press and hold the control key on your keyboard and use the up/down arrow keys to move it. The next time you enter or update the partition, the volumes will be renumbered, but the moved volume stays where it was. For example, if you have volumes 0 through 2 and move 2 before 1. The list will show volume 0, 2, 1; but once the extended partition is reloaded, the volume order will be back to 0, 1, 2. The volume that used to be 2 is now 1 and vice versa.

To delete an existing volume, highlight it and press the delete key.

FAT Multi-Boot Activate/Deactivate

This utility will mark a partition to be used for multi-boot. It will also copy the BOOTIT.FAT support file to the partition. It does not install the BootIt EMBR compatible boot sector code; that is done when the EMBRM is requested or forced.

To use this utility, select the hard drive that contains the partition you want to activate/deactivate as multi-boot capable. Next select the partition from the list. If the partition is already multi-boot capable it will ask you if you want to deactivate it. If so, answer yes, otherwise answer no to continue to update the BOOTIT.FAT file.

Once you have activated a partition as Multi-Boot; if BootIt finds the partition in the MBR, it will check the partition for any changes. If it finds that the BootIt boot sector code is not installed, it assumes a new OS installation and runs the Group Editor and possibly the BootIt Boot Menu Configuration utility; otherwise, it will check (by the file size/time/date) if any files from the last group have been updated. If so, it will ask if you want to update the group files (explained with the Group Editor utility) to match the active files.

If you are upgrading from version 2.01 or older then you will need to setup a group for each of your existing configurations. The configuration that was active when BootIt was installed will automatically have its files copied to the group rather than renamed. All you need to do is setup a group that uses the current information you have already setup. Lets say you had DOS and Win95 using a parameter string of DOS1IO SYS and W951IO SYS. You would create a group for DOS and W95. (Note if you used W40 and the active group was DOS you will need to rename the W40 group to something else. Use the DOS rename command to do something like ren *.w40 *.new (For hidden files you first need to

un-hide them with the attrib -h command.)) When it asks to overwrite any files you would say no. Then change your parameter strings to only contain the group. (You can shorten the Boot File parameter string length to 3 if you like).

Group Editor

The Group Editor edits/creates a data file named BOOTITMB.DAT in a FAT partition. The information in the data file is used by the BootIt Boot Menu when it is booting a FAT partition that has been activated as multi-boot.

A group is the directory name used to store the files on the partition under a directory named "BOOTIT". This utility is used by the FAT multi-boot support built into BootIt. When a FAT multi-boot partition is selected from the Boot Menu, the Boot Menu program will copy the files in the group to the original directory. This way, if you install another operating system and it overwrites one of the "active" files no harm is done.

To use this utility, select the hard drive that contains the partition you want to work with. Next, select the partition. If the data file does not exist, it will ask if you would like to create it.

To add a new group, press the insert key from the list of groups. It will ask you for the group code which can be from 1 to 11 characters. The group code is the directory that should be used to "group" all the files together. For example if the group code is "123" and the files you have associated with this group are FILE1.SYS, FILE2.COM, FILE3.BAT then those files would be copied to the group directory. Notice that within the same group you cannot have the same file name, in other words, you could not group \FILE1.SYS and \X\FILE1.SYS.

To edit an existing group, highlight it and press enter.

To delete an existing group, highlight it and press delete.

When editing or adding a group you will be presented with a dialog box with a list box and an input box. Enter a description for this group in the Input box (below the list box), this description is for your use only, but cannot be blank. Press tab to switch to the list box, if no entries exist it will automatically prompt you to enter a position code, path, and file name.

To associate another file to this group, press the insert key from the list box. You enter the position code, path, file name, and file extension. For example you could enter something like 1 \ IO SYS. This associates the file \IO.SYS with the group and tells the Boot Menu that it must be the first entry in the directory. Actually a '\ is not used if the file is in the root directory.

The position codes are 0-9. A value of zero indicates that it doesn't matter what entry in the directory this file resides. Values 1-9 indicate that the file must be in

that entry in the directory. This is only applicable for files in the root directory and not FAT32.

Refer to the "Operating Systems" section of this document for details on what the position code and file names should be.

To remove a file from the list, highlight it and press delete.

When you have completed the changes to the group, press F10 to save the position codes, paths, and file names. It will also attempt to copy the active files (the files in the list) to the group directory. If a group file and its associated active file exists, it will ask (for each file) if you want to replace the group file with the current active file. Obviously, if the current active files are from another operating system you would NOT want to replace the existing group file.

Once the active files have been copied to the group files, it will check for any files in the group which is not in the list of files associated with the group and ask if you want to delete it. It is important that you don't delete a file if you don't know what it is. The only time you would answer yes is if you removed that file from the group and you really don't need it anymore.

Install EMBRI/EMBRL

Run this utility to install or update the EMBRI (the code in the MBR) and EMBRL (the driver in the EMBR).

If your system no longer boots into BootIt and you no longer get the EMBRI version x.xx and EMBRL version x.xx as you normally do when the system is booted, you can run this utility to reinstall the EMBRI which probably got overwritten by an OS installation or utility.

Sound: Install/Remove Startup Sound

This utility will install a sound file. A sound file is an ASCII file with an extension of SND. The format of the sound file is discussed later.

When you run this utility it will first check if a sound is already active. If so, it will ask if you want to remove the sound (turn off sounds). If yes, it will delete the sound file on the partition and exit the utility. Otherwise it continues on.

It will ask you to place a diskette in the A: or B: drive with the sound file(s). When you do that (then press enter) it will list all the sound files found. To install one of the files, highlight it and press enter. It will play the sound and ask you if you want to install this sound. Answer yes or no. You can then press escape a couple of times to exit the utility.

The format of the sound file is as follows; note: capitalization/spacing is not important and the x in the examples represents a number.

cycles=x (optional-must be first) - number of times to cycle the entire routine.

Fx - Frequency to play (in hertz)

FRx|xSxLx - Frequency range to play. First x is starting frequency, x after '|' is ending frequency. S is optional and is the step frequency rate (default=1). L is also optional, it is the latency delay in milliseconds between frequency step. (default=0)

Dx - Delay in milliseconds. (1000 milliseconds = 1 second)

N - No sound. Turns sound off.

Here's a sample routine that will play 2000hz for .5 seconds, pause with no sound for 1 second, then play 500hz to 2000hz stepping 10hz with a delay of .005 seconds between steps, then do the same thing only from 2000hz to 500hz:

```
F 2000 D 500 N D 1000  
FR 500 | 2000 S 10 L 5  
FR 2000 | 500 S 10 L 5
```

Transfer to EMBRM on Hard Drive

When the "BootIt Install" utility was run, it created a file that contained information on where the EMBRM was installed. If the EMBRI, EMBRL, or EMBR get overwritten you can still get to the EMBRM on the hard drive by running this utility.

Undo EMBR/Restore FAT Boot Sector

This utility has three options. Undo Last EMBR creation, Undo Last EMBRI/EMBRL Install, or Restore saved FAT File.

The Undo Last EMBR creation does just that, It restores the section of disk used by the EMBR to the state it was in prior to the EMBR being installed. You select the file from the list that corresponds to the hard drive you want to undo. If you are removing BootIt you should first restore the boot sector of any multi-boot FAT partitions then always restore the hard drive that contains the EMBR Manager last.

Undo Last EMBRI/EMBRL Install does just that. When the Install EMBRI/EMBRL utility is run it creates a backup of the EMBR prior to installing anything. If something should happen during installation of the EMBRI or EMBRL you can restore back to what the EMBR was.

If you need to restore a Boot File to a partition because you are removing the multi-fat utility then first deactivate the FAT multi-boot by running the "FAT Multi-Boot Activate/Deactivate".

To restore the boot sector of a partition, choose the hard drive and partition. Next enter the boot file name to use for restoring the boot sector. To get a list of all files in the root directory, type in all question marks. Then you can choose the boot file from the list.

Update Reference to EMBRM

Use this utility to update the installation diskette in case the EMBRM partition has been moved. This makes sure that the "Transfer to EMBRM on Hard Drive" utility can find the EMBRM.

The Boot Menu

The Boot Menu is the first thing that will be displayed when the EMBRM is requested from the hard drive; provided there has been at least one entry configured for the Boot Menu. See the "BootIt Menu Configuration Program" for more information. If you have defined user menus then you will be prompted for a user/menu name and then a password. That menu is then active until the next reboot.

It will list all the menu entry items you configured. Provided everything has been configured properly, you simply select the item from the menu and press enter to boot that configuration. To boot without changing the current MBR or partition information, press escape and whatever configuration is active will be booted.

If the configuration that you choose boots from a FAT multi-boot partition, it will look at the parameter string configured for the boot file and copy the group files to be the active files. (See Group Editor for information on what active and group files are)

If the EMBRM is being forced and the time out value in the EMBRL parameter string is not zero, the Boot Menu will count down the number of seconds that have been configured. If a key has not been hit or either the enter key or escape key has been hit, it will boot the current configuration with out any extra processing such as updating the active files in multi-boot partitions. In the case of have a default configuration, it may need to update the files, etc.

If you need to update the active files in a partition because they may have been overwritten or deleted and the Boot Menu does a count down, you will need to hit a key such as the space bar to cancel the countdown then press enter to select the same entry.

To enter the EMBR Manager to perform maintenance or run one of the utilities, press the F10 key. If you have registered the product and have configured a password, you will need to enter it before you will be granted access to the EMBRM.

Operating Systems

DOS

Files and file positions required for boot (not including any compression drivers):

MS DOS		PC DOS	
Position	File Name	Position	File Name
1	IO.SYS	1	IBMBIO.COM
2	MSDOS.SYS	2	IBMDOS.COM
0	COMMAND.COM	0	COMMAND.COM
0	AUTOEXEC.BAT	0	AUTOEXEC.BAT
0	CONFIG.SYS	0	CONFIG.SYS

Notes:

If you already have Windows 95 installed as well as your prior version of DOS then there is already a group of files with the DOS extension. After you setup the group for Windows 95 you would use the Group Editor utility to create a Group for DOS. It will copy over the files for windows 95 to the DOS group directory. To fix this, Boot Win95 and delete the files in the DOS group directory under BootIt. Next unhide any DOS files in the root directory (attrib -h -s -r *.DOS) copy the *.DOS files to the DOS group directory under BOOTIT. Now rename the files to the correct names (ren config.dos config.sys, etc.). Finally, hide the system files (attrib +h +s +r io.sys, attrib +h +s +r msdos.sys).

If you have compressed volumes you have to make sure any OS you add supports the same format. You would probably also want to add the DBLSPACE.BIN or DRVSPACE.BIN file in the group (maybe even DBLSPACE.INI). You may also just want to use part of your partition for disk compression and only when that particular OS was booted. You'll have to think about what you want to do, the options are too numerous.

To transfer over the DOS OS to a partition that already has another OS you would use the SYS command. If the partition was blank but formatted you could use either the SYS or FORMAT /S command to transfer the OS, or if the partition was not formatted you would use the FORMAT /S command.

The swapping feature from version 1.x has been added to this version. This allows the partition to be booted from a hard drive other than 0. Please note that you will not be able to run Windows with 32bit disk access enabled. If you try, Windows will complain and automatically turn it off (for that session).

Windows 95/98

Files and file positions required for boot (not including any compression drivers):

Position	File Name
0	IO.SYS
0	MSDOS.SYS
0	COMMAND.COM
0	AUTOEXEC.BAT
0	CONFIG.SYS

Notes:

Release 2 of Windows 95 and Windows 98 may use FAT32.

Long file names are compatible with NT versions 3.5 or greater. NT version 3.11 will destroy your Win95 long file names.

If you have the Win95 upgrade it will ask if it should keep your existing version of DOS system files. If you say yes it will copy the files over to a file extension group of DOS.

Windows/95/98 will overwrite the EMBRI code; therefore, **once you have completed installation of Windows 95/98 you will need to boot with the BootIt installation diskette and either run the Transfer utility then the Install EMBRI/EMBRL utility or just run the Install EMBRI/EMBRL from the diskette drive. The difference is where the backup or undo file will be located.**

You can multi-boot OSR2/Win98 in a single FAT or FAT32 partition if you can install the different windows versions in different directories. Currently the Win98 Beta 2 doesn't give you a choice, it wipes out your existing Windows 95 files. Another problem is that "Program Files" is used by both versions as well as the programs you have installed have probably updated the registry. Another use for the multi-boot feature is to allow you to setup/use different files before booting the partition.

Of course you can use BootIt to keep each version in its own partition and boot it from that partition by only selecting one of the partitions in the MBR boot configuration. You could then keep all your programs on a "common app" partition used for applications, you may need to install the application twice (one for each Windows Version) to the same location (on the "common app" partition) to make sure the registry is correct in each version.

You should not use the multi-boot feature of Windows 95, in fact you may want to edit the MSDOS.SYS file and change the BootMulti=1 to BootMulti=0. If you use windows 95 to load the prior version of DOS it will rename the window 95 system

files to a group of W40 then rename the group DOS to the active file names. On the next reboot, BootIt will detect that the system files have been updated/changed and will prompt if you want to overwrite the group files you have for Windows 95. Obviously you'll say no to each file otherwise you'll be updating the Win95 system files with DOS system files.

Windows NT

Files and file positions required for boot:

Position	File Name
0	NTLDR
0	BOOT.INI
0	NTDETECT.COM
0	NTBOOTDD.SYS

Notes:

NTBOOTDD.SYS is usually only used with SCSI hard drives. It is a copy of the driver renamed to NTBOOTDD.SYS.

Windows NT is very picky on the order of partitions in the MBR. The file BOOT.INI has an entry that points to where NT should be and if its not there, NTLDR will issue some type of error (usually telling you that ntoskrnl.exe is missing). To fix it you can either update the BOOT.INI file or change the order of the partitions in the menu configuration so that the NT partition matches the BOOT.INI file. The item in the BOOT.INI file that you want to check is the x in partition(x). Partitions are counted in the MBR partition table from top to bottom skipping any extend partitions. Then continue counting the volumes in an extend partition.

If Windows NT is installed in an extended partition volume (or another hard drive) it will still install its system startup files on hard drive 0 in the current active primary partition. Therefore, make sure that the configuration you created boots from a partition on HD0. Then install NT.

If you want NT in its own partition on hard drive zero then first create a menu configuration with a new empty type 6 partition as the boot partition (you can format it first if you want) then boot once with that configuration which obviously won't boot because there is no OS on it. (you could just leave the boot partition blank to automatically boot from the floppy). Just make sure you added the partition to the MBR. Then boot from the floppy diskette drive with your NT installation diskette.

If you want NT on its own partition on a second hard drive then you need to do the same thing as the last paragraph but configure both hard drives MBR partitions. Then once NT has completed setup you'll need to copy over the NT system files to the partition on the second hard drive. The files are NTLDR, NTDETECT.COM, BOOT.INI and NTBOOTDD (for SCSI drives). Update BOOT.INI for any changes needed. Then you can remove the temporary partition you created on hard drive 0 (which is where the NT system boot files went).

NT4 may require installing the installation files to a hard drive before beginning. When creating the NT installation diskettes it may begin copying all the files to a temporary directory for installation. For this type of installation just create the menu configuration with the partition for NT (format it if it's a new partition). Boot with the configuration, if it's a new partition without an OS you will get the message stating that. Insert a system diskette that contains CDROM drivers to access your CD and press enter. Once the system is booted with your diskette, run the procedure to create the diskettes, it will then create the diskettes and copy the files to the partition (takes awhile). Once that is done, boot that menu configuration again then/or insert the NT installation diskette and begin the installation. After your done you may need to reinstall the EMBRI/EMBRL code, see the note in the Win95/98 section.

OS/2

Files and file positions required for boot:

Position	File Name
0	AUTOEXEC.BAT
0	CONFIG.SYS

Notes:

Actually 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 then you would need to add these files to the group.

When installing OS/2 use the advanced installation method so that you can be sure where your files are going. Be sure that you don't create any new partitions while you are in the fdisk utility (selecting the install partition).

You can install OS/2 in a primary partition on hard drive 0 without any problem. If you want OS/2 installed on to a logical volume or 2nd hard drive then boot manager has to be installed. Because the OS/2 Fdisk wants to create a "new" boot manager partition and won't let you select a partition for it to be installed on, you'll only be able to install boot manager if you only have 3 partitions and all the partitions are in the active boot configuration. If you create the boot manager

partition and partitions exist that are not in the MBR, then one of those partitions will (more than likely) be corrupted by boot manager. Once OS/2 is installed you can either directly boot the OS/2 partition or volume via BootIt or have BootIt boot the boot manager partition.

Don't use the OS/2 dual boot in an activated multi-boot partition. If your using a different setup where OS/2 is in its own partition with DOS only then it's okay.

Linux

Files and file positions required for boot: (More information at later date)

Position	File Name
0	
0	

Notes:

For multi-boot installations use something like the umsdos installation. Also, always install the loader in the root and not in the MBR.

Sample Configuration

Here is one example on how to setup a multi-boot partition. Another example on setting up an OS in its own partition is also given. Steps 2 and 3 of the multi-boot sample are optional. Be sure you have read the Getting Started section of this document so that you have some understanding on what is going on.

Multi-Boot Partition: Current OS is DOS/Windows

- 1) Install BootIt
- 2) Work with hard drive 0 (selected from the EMBRM Menu)
- 3) Rename the existing partition to whatever you wish. For the example I'll assumed it's named "My C Drive". Select save to save your changes.
- 4) Choose utilities then BootIt FAT Multi-Boot Activate/Deactivate. Activate multi-boot for the "My C Drive" partition then return to the utility menu.
- 5) Press Ctrl-Alt-Del to reset your computer.
- 6) BootIt will detect a new OS. Choose yes to create a boot file.
- 7) Enter a name for the boot file. I'll assume you entered BOOTDOS622.
- 8) The Group Editor utility will be automatically started. When it begins it will display a prompt telling you it has been started. Press enter or escape to get past the prompt.
- 9) It will tell you no groups exists. Select 'Y' to create a group. If any groups currently existed it would display them and you would press the insert key to add a new one.
- 10) Enter the group code. I'll assume you entered 622 and pressed enter.
- 11) Type in a description for this group. Something like "DOS/Windows".
- 12) Press Tab. A box will pop up with three input fields. Refer to the "Operating Systems" section of this documents on what to put in. Type in the position code then tab to the name field then tab to the extension field. Press enter to add the entry to the list.
- 13) Use the Insert key to add the rest of the files that were listed under the "Operating Systems" section. If you choose to automatically create the entries they will have already been entered for you.
- 14) Once all the names are in the list press the F10 key.
- 15) Now it will ask you if you want to run the menu configuration utility. Select yes.
- 16) Press insert to add a new menu entry. Type in the description of your choice, such as DOS/Windows, then press enter.
- 17) Press tab. Press tab again. Press Enter. Select the "My C Drive" partition and press enter. Press Tab then press enter. Select the boot file you created in

step 7. If you named it BOOTDOS622 then select it from the list and press enter.

- 18) Press tab (your now in the parameter string field). Enter the group code you created, If you used a group code of 622 then type in 622.
- 19) Press TAB. Press Enter and select the "My C Drive" partition for the MBR on HD0. (If you wanted any other partitions (such as an existing extended partition) added to the MBR, you would add them at this time by using the up/down arrow keys to highlight a blank entry, then pressing enter)
- 20) Press F10 to save your work. That's it for setting up the DOS/Windows configuration. Once your familiar with the process it will take you less than 30 seconds to setup.
- 21) Now install the next operating system you want, then repeat steps 5 through 20. Some operating systems (such as Windows 95) will overwrite the EMBRI code. If that is the case all you need to do is boot with your BootIt installation diskette and run the transfer utility to switch to the hard drive EMBRM. After the transfer has completed, select the Install EMBRI/EMBRL utility to update the EMBRI and EMBRL. Once the update is complete, you'll be back in business. You could actually run the utility from the floppy but, the backup file will be located on the floppy and not the hard drive.

Single Partition: Installing Windows NT/other on unpartitioned hard drive.

- 1) Install BootIt.
- 2) Create a Partition for Windows NT. From the EMBRM menu choose to work with hard drive 0 then choose "Add New Entry" by pressing enter. Continue until you have setup a partition of type 6.
- 3) Format the partition using the format utility.
- 4) Create a menu entry for the Windows NT partition. Use the Boot Menu Configuration utility. Enter the description for the entry then press enter. Tab over to the partition field and press enter and select the partition from the list. (If its not on the list you forgot to mark the partition bootable when setting it up). Tab over the MBR for HD1 then press enter an again select the partition. Press F10 to save your changes.
- 5) Press escape until you enter the Boot Menu (one ESC key past the EMBRM main menu).
- 6) Choose the entry from the menu to update the MBR. It will display a message saying that there is no operating system installed on the partition.
- 7) Now insert your installation diskette in the A: drive and press a key to continue. The installation diskette will now be booted.
- 8) You should usually use the advanced or custom installation choices to make sure the installation routine doesn't try to create a new partition. Remember that the OS and system tools only see the partitions that are in the MBR, so 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 doesn't get moved or expanded.
- 9) That's it your done.

One common configuration is to have multiple primary partitions (one for each operating system) and one common (shared) extended partition. To do this you indicate the boot partition, then you add both the boot partition and extended partition to the MBR for each configuration.

BootIt 2 Order Form

Text version in file REGISTER.FRM

Remit To:

TeraByte Unlimited
258 N. Saturmino Dr.
Palm Springs, CA 92262

Registration Name:

Date:

Mailing Address:

Phone #:

Phone #:

Fax #:

E-Mail Address:

PC Brand/CPU Type:

Shipping Address:

Hard Drive Type: IDE EIDE SCSI

Primary OS:

Secondary OS:

How did you learn about BootIt:

Floppy Drive Size(s): 3.5" 5.25"

Description	Unit Price	Qty++	Extended Price
BootIt 2 Registration	\$39.95		\$
BootIt 2 Programmer API Documentation (Word document)	\$9.95	1	\$
Sub-Total			\$
Shipping and Handling Fees for orders not sent via e-mail add \$9.95			\$
California Residents add applicable sales tax			\$
TOTAL CHECK OR MONEY ORDER ENCLOSED*			\$

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

++ Site-License formula \wedge : $(\text{qty}/\log(\text{qty})) * 39.95$

\wedge Educational organizations use log base 5 all other organizations use log base 10.