



# BootManage® Administrator Installation Manual

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# Introduction

# What is the BootManage<sup>®</sup> Administrator (BMA)

The BootManage<sup>®</sup> Administrator allows a fully unattended installation of networked PCs, including partitioning and formatting of the local hard disks as well as the complete first time and re- installation of the operating system.

This happens from a central point in the network without any personnel needed on site.

## Requirements for the BootManage Administrator:

- PXE Prom or BootManage TCP/IP BOOT-PROM
- BOOTP or DHCP server
- TFTP server
- Two Server shares

## PXE

The Preboot Execution Environment (PXE) is part of the Wired for Management specification designed by Intel. It is used to receive programs from a server and execute them before the PC actually starts booting the operating system.

A PXE Prom itself provides only basic functionality which requires additional components such as the BMA to allow a network boot or a remote installation.

## BootManage TCP/IP BOOT-PROM

With the BootManage TCP/IP BOOT-PROM comes a set of utilities, needed for the remote installation of a PC. The way the BootManage TCP/IP BOOT-PROM works is similar to the PXE specification that has been derived from it.

## DHCP Server

The Dynamic Host Configuration Protocol (DHCP) is a standardized and therefore vendor independent protocol. It allows a central administration of the configuration information and the dynamic deployment of IP addresses. DHCP also manages IP address ranges and sends out replies to DHCP enabled client requests. The BMA uses DHCP to deliver global parameters to the client PCs in addition to the DHCP standard configuration, needed for the installation.

## TFTP Server

Trivial File Transfer Protocol (TFTP) is the name of a standard and vendor independent protocol for the transfer of files in a PC network. TFTP runs on a server and sends out specific files on request to a TFTP client PC. On a TFTP server there is typically TCP/IP active and the TFTP service is up and running.

The BMA uses the standard TFTP protocol to provide boot images and configuration data to PCs to be installed. This procedure is based on the network share which points to the TFTP data directory.

## How it works

When switching on or resetting a PC the boot prom in it takes over control and sends out a broadcast named DHCPDISCOVER (in a DHCP network) into the local subnet in order to find out if there is a DHCP server. The first request includes the MAC address of its Network controller because the PC doesn't yet have an IP address at this stage. Now the client waits to receive a DHCP OFFER reply from a DHCP server.

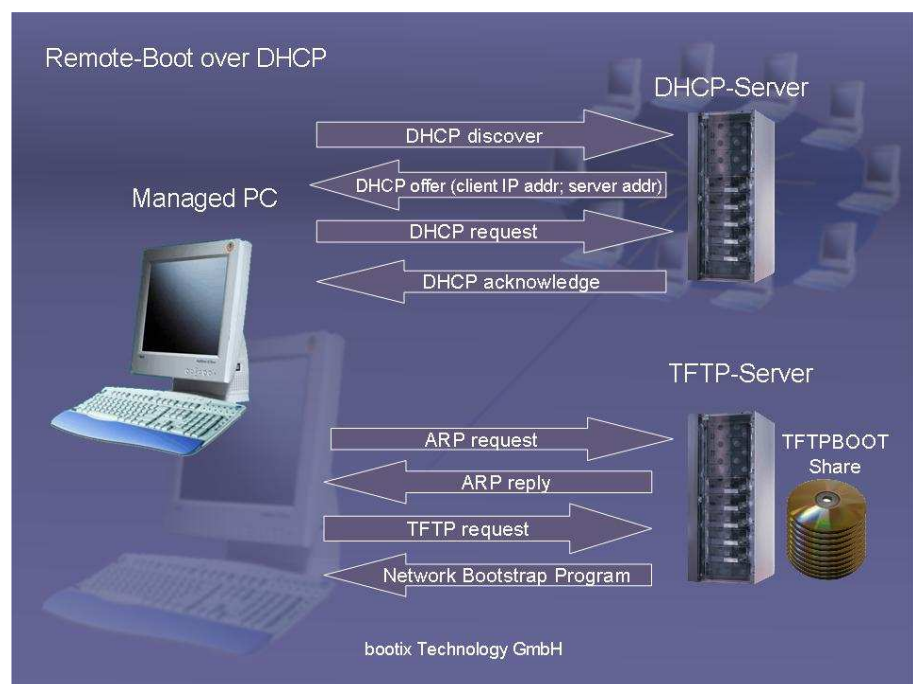
All DHCP servers in this local subnet reply with a broadcast named DHCP OFFER. This reply now contains the IP address of the DHCP server and is sent to a broadcast address (usually: 255.255.255.255) which is understood by the client.

As soon as the DHCP client has accepted a DHCP offer he sends out a DHCPREQUEST data block to all servers, then chooses one server (usually the fastest one) and informs all other servers that it doesn't accept their offer. This accepted information contains a server identifier which includes the name of the DHCP server whose configuration parameters have been accepted by the client.

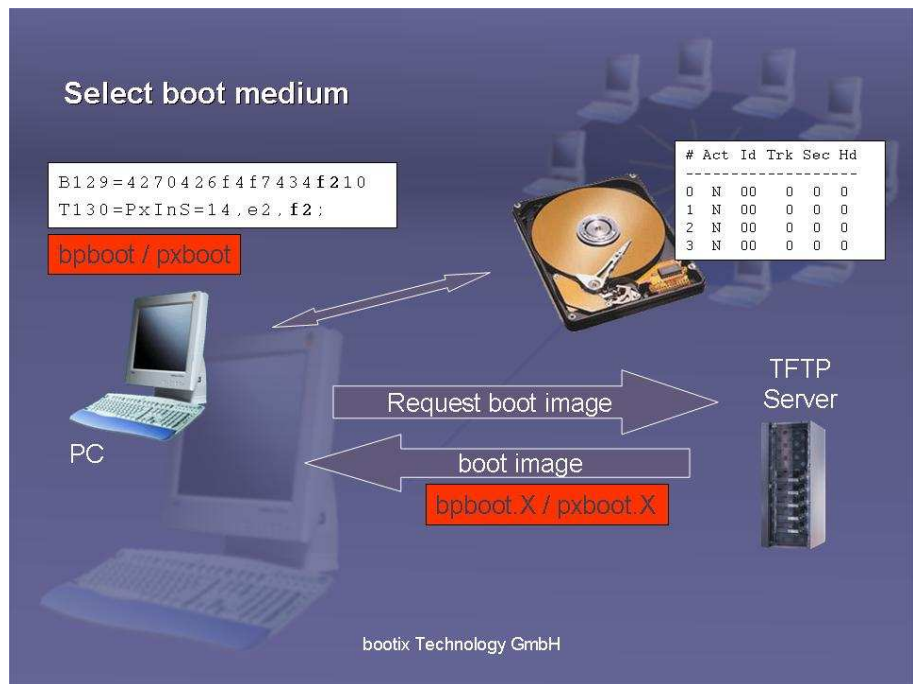
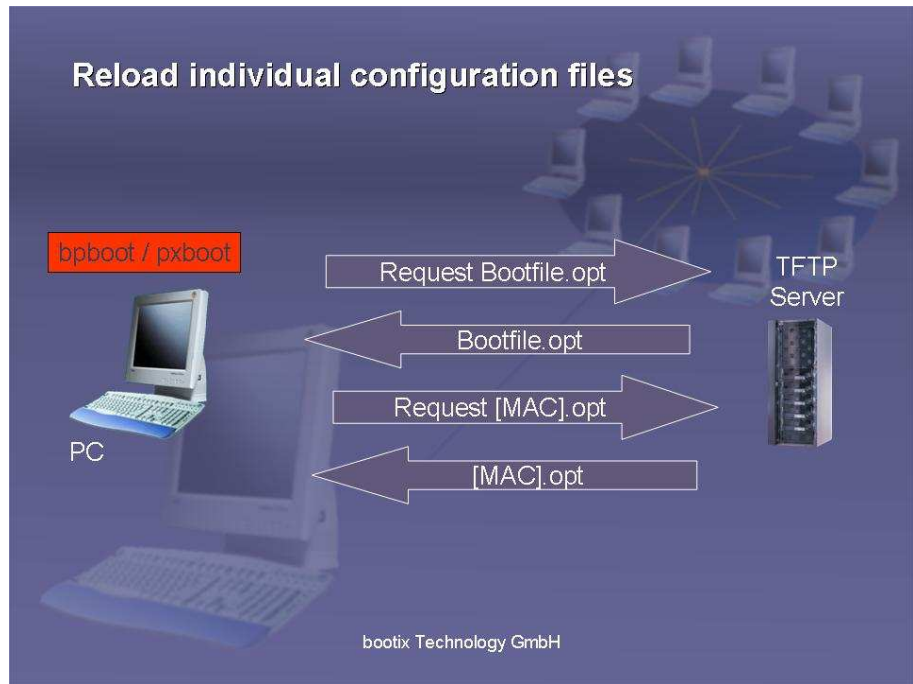
Then the accepted server sends a DHCPACK (DHCP Acknowledge) and reconfirms the originally offered parameters. At this point in time the address assignment is completed. From now on the client is able to send and receive TCP/IP packets to and from other PCs.

After the boot prom has received the above described information the TFTP phase starts. Via the TFTP protocol a Network Bootstrap Program is being downloaded and executed on the client. Using the BMA loader is called PXBOOT in DHCP networks (in conjunction with PXE proms) and BPBOOT in BOOTP based networks (in conjunction with TCP/IP BOOT-PROMS).

This Network Bootstrap Program (NBP) loads over TFTP two additional configuration files (OPT files). Based on the entries in the partition table the PC either starts from the local hard drive or from the network.



## Network Bootstrap Program (NBP)





# Installation of the BootManage Administrator



# Preparation of the installation

- Configuration sheet
- Setup DHCP/BOOTP server
- Setup TFTP server
- Create pseudo user account for PC installation
- Prepare installation server
- Provide diskette for boot image creation
- Install BootManage Administrator
- Perform first-time configuration
- Configure client PC for network boot
- Install first client PC via BMA

The BootManage Administrator can be used in various network environments, from a single-server test system to distributed enterprise networks with DHCP, TFTP and installation servers in multiple locations.

By strictly adhering to standards, only minor configuration has to be done on the server side, even in complex environments.

## Configuration Sheet

Before installing the BootManage Administrator, it is recommended to assemble all relevant information and fill out a configuration sheet.

A configuration sheet can be found in the appendix of this document.

## Setup DHCP/BOOTP Server

A DHCP or BOOTP Server assigns IP addresses to client PCs and also provides them with network information (subnet mask, DNS server, router etc.).

The BootManage Administrator requires that a DHCP server is already present and configured according to standards.

Two parameters must be added to the standard DHCP configuration: the name of the boot image file to use (“file”, option 067), and the IP address of the TFTP Server on which the boot image file is located (“siaddr”, option 066).

For detailed information, please refer to the chapter Setup DHCP Server.

## Setup TFTP Server

TFTP is a very simple file transfer protocol that is mainly used to transfer boot image files during network boot operations.

Along with the BootManage Administrator, a Windows based TFTP Server is provided. However, any standards-conforming TFTP server can be used as well.

In any case, the TFTP server’s data directory (tftpboot) must be exported and accessible from the network as “Windows Network Share”. The BootManage Administrator must be able to read from and write to this share.

In general, it is recommended to provide shares with full access permissions and implement the desired access permissions within the underlying file system.

For detailed information, please refer to the chapter Setup TFTP Server.

## Create Pseudo User Account for PC Installation

During the automated installation, a client PC must connect a network drive to an installation server. This requires an authentication to the server respectively to the domain.

Therefore, a corresponding user account must be created on the installation server respectively within the domain. Also, the account information must be made known to the BootManage Administrator, so that it can be used from the client PCs during the automated installation process.

For PC installations in a domain environment, make sure that the user account has the permission to add new PCs to the domain.

For detailed information, please refer to the chapter Create installation user.

## Prepare Installation Server

On the installation server, it is only necessary to create a network share, with sufficient disk space to hold the installation files of all operating systems that should be installable on client PCs by means of the BootManage Administrator.

The base directory and its associated share should be named “osmaster”.

## Provide Diskette for Boot Image Creation

During the initial configuration of the BootManage Administrator, a diskette is needed temporarily for the creation of the boot image. Please provide a 3.5” diskette.

Format the diskette from DOS or Windows 9x using the command:

Format a: /u /s /v:disk

After formatting, copy the files HIMEM.SYS, EMM386.EXE, XCOPY.EXE, SMARTDRV.EXE and for Windows 98 also XCOPY32.MOD to the just created startup disk.

In case you do not have a bootable DOS disk, you may also execute the program WIN98BMA.EXE that is located in the tools directory of the BMA CD-ROM. This program will create the needed start disk.

For detailed information, please refer to the chapter Provide Diskette for Boot Image Creation.

## Install BootManage Administrator

The BootManage Administrator is a Windows application and, therefore, must be executed on a Windows PC. It needs read and write permissions to the above mentioned shares, i.e. the TFTP data directory (tftpboot) and the operating system base directory (osmaster), including all subdirectories.

Execute the SETUP.EXE program and follow the instructions on the screen.

## Perform first-time configuration

At the first start of the BootManage Administrator, the first-time configuration wizard is automatically executed. Follow the instructions on the screen to perform the following steps:

- Insert previously created diskette for boot image creation
- Specify TFTP share as [\\TFTPSERVER\TFTPBOOT](#)
- Specify OSMaster share (operating system base directory) as [\\INSTALLSERVER\OSMASTER](#)

- Specify pseudo user account for PC installation (name, password, optional domain)
- Define operating system for client PC installation
- Specify Password for BMA administration account (Admin)

The pseudo user account for PC installation must have read access in the operating system base directory. Also, it must have read/write access in the \$BMNEWPC.DIS directory and in all subdirectories.

## Configure Client PC for network boot

Configure your PC so that it always first boots from the network, either via PXE or via TCP/IP BOOT-PROM.

## Install first Client PC via BMA

Start the client PC and make sure that it boots from the network using either PXE or TCP/IP BOOT-PROM. After a short while, the PC will display the message “Waiting for Confirmation by administration”. In the BootManage Administrator console, a new PC entry will appear within the \$unknown group. As soon as an operating system is assigned to this PC, the installation will run completely unattended.

# Installing a DHCP server

## Which DHCP server can be used?

The DHCP server does not have to satisfy many requirements to run with the BootManage® Administrator. This is why almost all available DHCP servers can be used, e.g.:

- Microsoft DHCP server (Windows NT Server 4.0)
- Microsoft DHCP server (Windows 2000 Server)
- ISC DHCP server (Linux/Unix)
- NetWare DHCP server (NetWare 5)

## Configuring the DHCP Server

The configuration of the DHCP-Server is not a feature of the BMA. A DHCP server has to be installed with its own means or features provided by the operating system it shall run on. The administration interface varies. Microsoft provides a graphical user Interface (GUI), called the DHCP Manager or DHCP Management Console, whereas the configuration description of the ISC DHCP server is held in a file called dhcpd.conf, which is a text file that can be changed with simple text editor.

The configuration of the BootManage® Administrators requires a certain knowledge regarding the installation and administration of the DHCP server and needs a standard DHCP Scope ready to use.

## Using the Microsoft DHCP Server

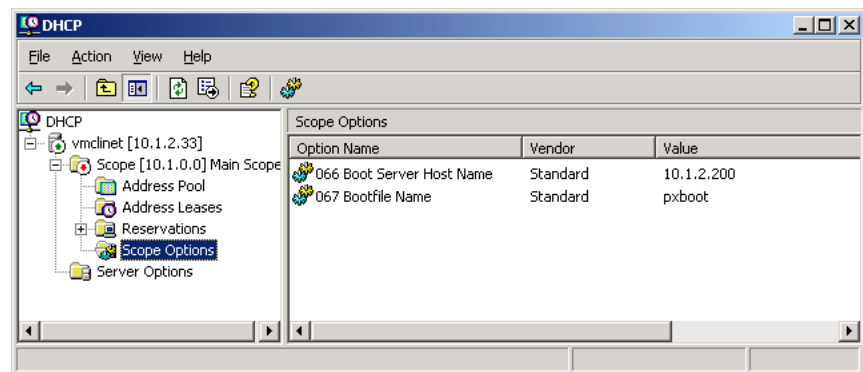
To run the BootManage<sup>®</sup> Administrator, two DHCP options must be added to the standard configuration:

Boot Filename (option 067)

Please note that the BMA supports two kinds of boot proms a) bootp based BootManage TCP/IP BOOT-PROMs and b) PXE Proms. For the two cases two different entries have to be made. If the client runs with TCP/IP BOOT-PROM, the "Boot Filename" option has to be set to "bpboot", otherwise to "pxboot".

Boot Server Host Name (option 066)

The IP address (or resolvable name) of the TFTP server must be defined in option 66 (Boot Server Host Name).



## Using the Linux (ISC) DHCP Server

*Sample dhcpd.conf File*

```
subnet 10.1.0.0 netmask 255.255.0.0 {
    filename "pxboot";
    range 10.1.2.7 10.1.2.7;
    option subnet-mask 255.255.0.0;
    next-server 10.1.2.200;
    option routers 10.1.0.254;
    #option option-131 "PxDbG=02;";
}
```

The ISC DHCP Server 3.0 supports scripting in the dhcpd.conf file. This feature allows identifying PXE enquiries.

```
class "pxeclient" {
    match if substring (option vendor-class-
identifier, 0, 9) = "PXEClient";
    filename "/tftpboot/pxboot";
    next-server Servername;
}
```

## DHCP and Network boundaries

The DHCP protocol is based on "broadcasts" which would normally require DHCP client and server being in the same subnet. The following mechanisms help to work with DHCP across subnet boundaries

- Broadcast forwarding for DHCP packets in the router
- IP Helper addresses
- DHCP Forwarder

How it works can be read in the corresponding documentation of the DHCP server to be used.

# Installation of a TFTP-Server

## Which TFTP server software can be used?

The TFTP server does not have to satisfy many requirements to run with the BootManage<sup>®</sup> Administrator. This is why almost all available TFTP servers can be used, e.g.:

- BootManage<sup>®</sup> TFTP Server for Windows 32 Bit platforms
- BootManage<sup>®</sup> TFTP Server for NetWare
- UNIX TFTP Server
- Other TFTP implementations

Be aware that Windows PE and Linux based boot images require certain features of the TFTP standard which may not be implemented by all TFTP Server implementations. On Windows systems, it is recommended to use the BootManage<sup>®</sup> TFTP Server that comes with the BootManage Administrator.

When upgrading from a previous BootManage Administrator version, make sure that you also upgrade the BootManage TFTP Server!

## Installation of the TFTP Server for Windows 32 Bit platforms

The BootManage<sup>®</sup> TFTP Server for Windows 32 Bit platforms is part of the BootManage<sup>®</sup> Administrator installation CD. The SETUP.EXE program is located in the directory `\bootix\Server\TFTPD32\`.

## Configuration of the TFTP Server

By default a TFTP server puts the files it manages in a directory named TFTPBOOT. If TFTP clients ask for a specific file the TFTP server gets this file from the TFTPBOOT directory and sends it in packets to the client.

To allow the BootManage<sup>®</sup> Administrator to access this TFTPBOOT directory, the BMA must have read and write permission to this directory exported as share. This way it is possible to run DHCP and TFTP server on different machines.

The path to the TFTPBOOT directory must be provided to the BootManage<sup>®</sup> Administrator during the installation. Afterwards the BootManage<sup>®</sup> Administrator puts the boot images and the option files automatically into this TFTPBOOT directory.

Please note: even though the BootManage<sup>®</sup> TFTP server creates the TFTPBOOT directory during installation it has to be manually installed as share.

## What does the TFTP Server administer?

### Boot Image

In the TFTPBOOT directory is the boot image, which is sent out to all enquiring client PCs. This boot image, administered by the TFTP Server is generated and maintained by the BootManage<sup>®</sup> Administrator.

### Option files

The TFTP directory not only holds the boot image but also contains the option files also generated and maintained by the BootManage<sup>®</sup> Administrator. They contain specific information for each client PC.

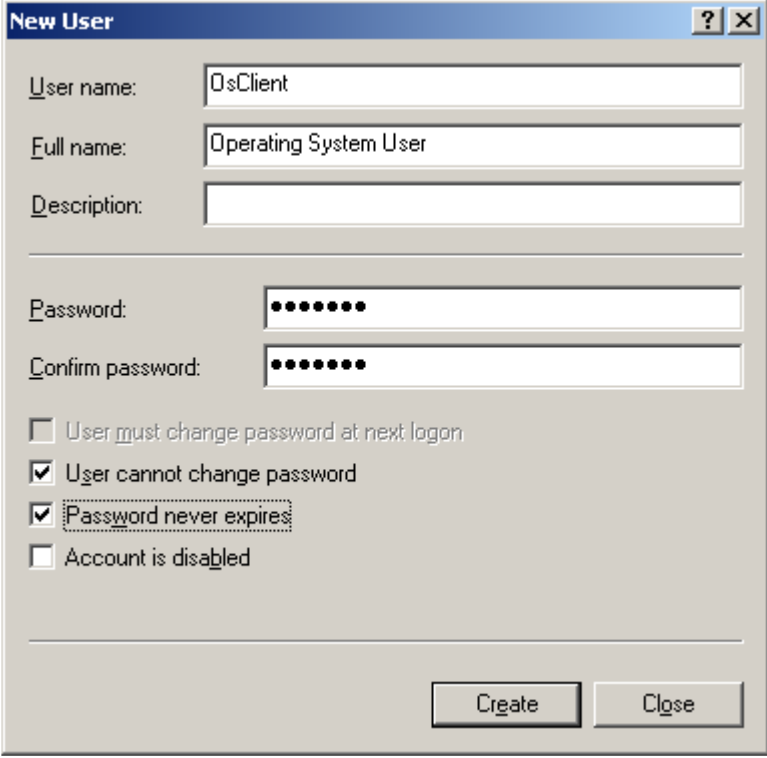
# Creating an Installation User

During the automated installation of the operating system the client establishes a connection to a network drive on the installation server. This automated login procedure requires a pseudo installation user account.

## Generating a installation user account

To allow the installation user to login to the installation server or a Windows NT/2000 domain he needs to have an account.

The following sample shows how an installation user is generated in a Windows NT 4.0 domain, using the domain user manager. The new account is setup as follows:



The screenshot shows a 'New User' dialog box with the following fields and options:

- User name: OsClient
- Full name: Operating System User
- Description: (empty)
- Password: (masked with 7 dots)
- Confirm password: (masked with 7 dots)
- User must change password at next logon
- User cannot change password
- Password never expires
- Account is disabled
- Buttons: Create, Close

If the operating system installation runs from a UNIX server having an installation directory exported via SAMBA, the installation user has to be created on the UNIX server

Having setup the installation user it is wise to check if the new account is able to establish a network drive connection from a different computer to the installation server.

## **Make user name and password known to the BMA**

To support the automated login to the installation server during the installation procedure, account data of the installation user like name, password and workgroup/domain must be accessible to the BootManage<sup>®</sup> Administrator. The BootManage<sup>®</sup> Administrator integrates this login information into the corresponding boot image.

Please note: Any change made to the installation user data on the login server or in a Windows NT/2000 domain, must also be made in the BMA. Data on both ends have to be exactly the same! Otherwise the login will fail.

### **Domain or workgroup?**

In a workgroup every installation server maintains the user accounts itself. To allow a login to several installation servers with the same user data, a separate user account under the same name has to be created on every such installation server.

In a domain the administration of user accounts happens from one central point. The user has to login to the domain only once. From then on he can access every installation server within this domain.

The installation user in a NT/2000 domain has to be added to the group of account operators. This is necessary to give the installation user the right to add new PCs to the domain or modify the computer account of an already existing workstation.

### **Administrator and user accounts**

The operation of the BootManage<sup>®</sup> Administrator requires the creation of two accounts:

The administrator account allows the installation and administration of the BootManage<sup>®</sup> Administrator.

The account of the installation user is necessary to allow the client PC to login to the network during the automated installation of the operating system.



# Preparing the installation server

## What is an installation server?

On an installation server there is the basic directory for the client installation. All the installation files made known to the BootManage® Administrator for the various operating systems as well as status and inventory files can be found there. All necessary data for a PC installation comes from such an installation server.

## Basic directory for operating systems

The BootManage® Administrator puts all necessary data for the client operating system installation into the basic directory. This basic directory must be installed as a share and must have Read/ Write permission, to give the BMA free access to it.

Client PCs also access this basic directory but only need read permission.

During the automated installation of the client PCs status and log information are being written a subdirectory called \$BMNEWPC.DIR. Client PCs must have write permission.

# Creating the Shares

The following steps have to be performed to create the basic (source) directory for the operating systems (OS) on the installation server.

- Open the desktop and choose a drive that has enough space for the desired operating systems.
- Create a folder compliant to the 8.3 convention.
- Release this folder (Share).
- Check the access rights to this folder

Now there should be 2 shares. One pointing to the TFTP directory and the other one as base directory for the operating systems.

# Provide Diskette for boot image creation

## What is a boot image?

During the automated installation, the client PCs download the boot image file from the TFTP server and use it as virtual boot disk. This task is accomplished by the client PC's boot prom code.

Basically, the boot image file is the sector-by-sector image of a bootable diskette. Creation and management of the boot image is completely handled by the BootManage Administrator. However, with the necessary knowledge, the boot image file can also be modified and extended for custom use.

During the installation, the BootManage Administrator automatically generates a generic boot image for all client PCs and places this in the TFTP data directory. This generic boot image is used to control the automatic installation of all client PCs.

Normally, one does not need to modify the generic boot image. However, should it become necessary to adapt or extend it, the BootManage Administrator assists in this task.

To modify the generic boot image, select "Modify Boot Image ..." from the "Tools" menu, and the "Generate" and "Modify" buttons will appear.

"Modify" opens an explorer window into the boot image base directory. Within this directory, one finds all the files that make up the boot image. Modify these files to suit your needs. After that, simply close the explorer window.

To create the boot image from the files in the boot image base directory, click the „Generate“ button. This causes the boot image to be generated and copied to the TFTP data directory.

**WARNING:** The boot image is used by all client PCs for the automated installation. Changes to the boot image immediately affect the installation of all future client PCs.

## **Create boot image**

At the beginning of the automated installation, the client PC loads a boot image from the TFTP server. This boot image is a sector-by-sector image of a bootable floppy disk. To install an arbitrary number of client PCs, only a single boot image is necessary.

Before the first client PC can be installed automatically, the boot image file must be created. For this, a bootable system diskette must be inserted in the disk drive. Anything else is automatically performed by the BootManage<sup>®</sup> Administrator. This bootable system diskette can be created on a PC that runs either DOS or Windows 98. Please proceed as follows:

## **Create System Disk under DOS**

Insert a 1,44 MB 3,5" diskette in the floppy drive

Format the diskette using the command  
FORMAT A: /U /S /V:BOOTMAN

Copy the following files from the DOS directory into the root directory of the just-formatted diskette::

HIMEM.SYS  
EMM386.EXE  
SMARTDRV.EXE  
XCOPY.EXE

## **Create System Disk unter Windows 98**

Insert a 1,44 MB 3,5" diskette in the floppy drive

Start an MS-DOS command shell

Format the diskette using the command  
FORMAT A: /U /S /V:BOOTMAN

Copy the following files from the DOS directory into the root directory of the just-formatted diskette::

HIMEM.SYS  
EMM386.EXE  
SMARTDRV.EXE  
XCOPY.EXE  
XCOPY32.MOD

## Use system provided diskette

In case you do not have a DOS or Windows 98 system, you may also execute the program WIN98BMA.EXE which is located in the TOOLS directory of the installation CD-ROM.

## Modify boot image

Normally, one does not need to modify the generic boot image. However, should it become necessary to adapt or extend it, the BootManage Administrator assists in this task.

**WARNING:** The boot image contains a number of functions and mechanisms that provide means of communication and synchronization with the BootManage Administrator console and are important for the seamless operation of the BootManage administrator as a whole. If you change these functions, then it is possible that the automated installation does no longer work as intended and expected. So, make sure that you understand what you are doing before performing any modification.

To modify the generic boot image, select "Modify Boot Image ..." from the "Tools" menu, and the "Generate" and "Modify" buttons will appear.

"Modify" opens an explorer window into the boot image base directory. Within this directory, one finds all the files that make up the boot image. Modify these files to suit your needs. After that, simply close the explorer window.

To create the boot image from the files in the boot image base directory, click the „Generate“ button. This causes the boot image to be generated and copied to the TFTP data directory.

# Rights and security

## Directories and shares

To allow only authorized personnel access to the directories and shares administered by the BootManage® Administrator, the following permissions have to be established with the means of the underlying OS.

### Program directory of the BootManage® Administrator:

The administrator account has full access: read, write, create and delete files. The installation user account has no access rights.

### TFTPBOOT directory:

The administrator account has full access: read, write, create and delete files. The installation user account has no access rights.

### Basic directory on the installation server:

The administrator account has full access: read, write, create and delete files. The installation user account has read access right. The installation user account needs full access to the subdirectory named \$BmNewPC.dir

### Database

The database of the BootManage® Administrator is located in the program directory of the BootManage Administrators®. It is therefore protected the same way as the program files.



## **Updating the BootManage Administrator**

## **WARNING**

Always make backup copies of your configuration before trying to uninstall or update the BootManage Administrator, otherwise your existing configuration may be lost forever!

Also, make sure that you have a valid license for the newer BootManage Administrator version that you intend to install. Otherwise, the newly installed version will not work unless you have entered a matching license.

## **Introduction**

An existing installation of the BootManage Administrator can be updated to the latest version. As the BootManage Administrator can be customized to a very high degree, bootix has deliberately chosen not to make this update process automatic.

If you try to install the latest BootManage Administrator version on top of an already installed older version, a message box informs you that you will have to perform the update manually.

Following, we will show you step-by-step how to perform a manual update of the BootManage Administrator while retaining your entire configuration, including custom modifications to configuration and batch files.

### **Step 1: Stop Running BootManage Administrator Processes**

Make sure that you stop all running BootManage Administrator processes, i.e.:

If the BootManage Administrator console is running, close it.

If the BootManage Administrator service is running, stop it.

If the BootManage Administrator web server console is running, close it.

If the BootManage Administrator web server service is running, stop it.

### **Step 2: Backup existing configuration**

Make a backup copy of the entire BootManage Administrator program folder, %ProgramFiles%\bootix, including all files and subfolders. You will need some files from this folder structure in later steps.

### **Step 3: Uninstall the installed BootManage Administrator version**

Now that you have a backup of your existing program folder, you can safely uninstall the BootManage Administrator using the “Add/Remove Programs” function within the Windows control panel.

The uninstall process will leave a number of files in the %ProgramFiles%\bootix directory. Please delete them manually by removing the %ProgramFiles%\bootix folder and all of its contents.

It is not necessary to reboot the system after the uninstall procedure.

### **Step 4: Install the new BootManage Administrator version**

Execute the setup of the new BootManage Administrator version and follow the instructions that are given to you on the screen. After the installation process is finished, do not start the BootManage Administrator.

### **Step 5: Migrate existing configuration**

In order to reapply your existing configuration to the newly installed BootManage Administrator, a number of steps must be performed.

First, copy the existing database, MASTER.MDB, from the backup to the program directory, and overwrite the file that is already present.

Next, copy the main INI initialization file, BM\_ADMIN.INI, from the backup to the program directory, and overwrite the file that is already present.

Next, from within the UTILITY subdirectory, execute the MAKEBOOTIMG.BAT batch file. This will automatically generate the master boot image environment.

If you have not made any custom modifications to the boot image and/or OS.INI configuration file, the migration is already finished. Start the BootManage Administrator, select "Generate Boot Image" from the boot image menu, and you are done.

### **Step 6: Migrate custom modifications**

In case that you have made any custom modifications to the BootManage Administrator, you will have to reapply them to the newly installed version. Do not simply copy the existing files over the new ones!

OS.INI: Copy any manually added OS entries from the existing OS.INI file and append them to the new OS.INI file.

Master Boot Image: Transfer all manually added functions from the existing boot image files to the new ones, e.g. added NDIS2 drivers and any custom modifications of the batch files. Again, do not simply copy the existing files over the new ones! Note that you must regenerate the master boot image after every change.

Additional boot images: Copy all directory structures of additional boot images from the backup to the program directory, e.g. 0002, 0003, etc.(not the 0001 directory which holds the master boot image!).

### **Step 7: Migrate custom web server modifications**

If you have made custom changes to the BootManage Administrator web server configuration, you must also reapply them to the newly installed version:

HTTPD.CONF: Transfer any custom modifications from the existing file to the new one, e.g. the HTTP port setting.

Web Server look-and-feel: If you have made custom changes to the web server document template files under the DOC directory, reapply them to the new files.

### **Step 8: Enter BootManage Administrator License**

It is not necessary to really your existing license to the new version of the BootManage Administrator; this has already been done as part of the above migration process.

However, you always need a license that matches the version of the BootManage Administrator, e.g. a license for version 6.6 will not allow you to run on version 6.7. In order to acquire a matching license, please contact bootix.

If you do not have a matching license, the new version of the BootManage Administrator will inform you at first start about this, and queries you to enter a valid license. You will not be able to use the BootManage Administrator unless you have provided a valid license.

### **Step 9: Update BootManage TFTP Server**

When you are using the BootManage TFTP Server for Windows, make sure that you also update it to the latest version. To do so, simply uninstall the existing version, and install the new version that is also available on the BootManage Administrator product CD-ROM.



## **Uninstalling the BootManage Administrator**



You can uninstall the BootManage Administrator in the common way by selecting the corresponding entry in the “installed programs” list and clicking “remove”. The deinstallation process removes all BootManage Administrator program files, but leaves the configuration and licensing information as well as the boot image(s) and operating system base directories intact.

After uninstalling the BootManage Administrator, you may install it again and find that the previous environment has been kept, so that you do not need to go through all the configuration steps again.

If you want to completely remove all the files that an uninstall process has left (e.g. after finishing a test/demo installation), please proceed as follows:

Delete the entire folder “%ProgramFiles%\bootix”

Delete the entire shared operating system base directory

Delete all “pxboot.\*”, “bpboot.\*”, and “\*.opt” files from the TFTP base directory



## Licensing Issues

### Client Based Licensing

The BootManage Administrator licensing is strictly client based, there are no server licenses. That means, regarding licensing, it does not matter whether you have an environment with a single or multiple servers. All you need to do is determine the total number of managed clients and purchase an appropriate license. The following table illustrates this:

Number of Servers	Number of Managed Clients	Required Licenses
1	100	100
4	500	500
10	2500	2500
50	7000	7000

### Combining Licenses

It is also possible to combine multiple licenses in the BootManage Administrator License Manager. If you have originally purchased the BootManage Administrator with a 100-Client-License, you can purchase a 250-Client-Extension-License and combine both licenses to manage a total of 350 clients.

### Ordering Additional Licenses

When ordering extension licenses, you must provide the license details of the already installed license. Otherwise you will receive a starter kit license that is not suitable to extend an already installed system. In BootManage Administrator version 6.7 Build 1590, a license report feature has been added. Whenever you want to purchase additional licenses, just generate a license report (by selecting "Help / BMA Version Report" from the menu) and attach it to your order.

### Update Licenses

BootManage Administrator licenses are version-aware, i.e. in order to update the BootManage Administrator, your licenses must be suited for the proper version, or you must purchase an update license. For details, please contact bootix.



# **Configuration Sheet and Checklist**

# Configuration sheet / Installation Checklist

## DHCP Server

Name: \_\_\_\_\_

Create Option 067 (boot file name / filename)

As value, specify „pxboot“ for PXE respectively „bpboot“ for TCP/IP BOOT-PROM Clients

Create option 066 (server host name / next-server)

As value, specify the IP address or the (by DNS resolvable) name of the TFTP server

## TFTP Server

Name: \_\_\_\_\_

Data directory: \_\_\_\_\_

Share name: \_\_\_\_\_

Export TFTP data directory

BootManage Administrator needs read/write permissions

## Pseudo user account for PC installation

Name: \_\_\_\_\_

Domain: \_\_\_\_\_

Password: \_\_\_\_\_

Create user account on installation server respectively within domain

The same information is needed during first-time configuration of the BMA

## Installation Server

Name: \_\_\_\_\_

Base directory: \_\_\_\_\_

Share name: \_\_\_\_\_

Create and share installation base directory

BootManage Administrator needs read/write permissions

PCs need read/write permissions for \$BMNEWPC.DIR and subdirectories

Within other directories, PCs only need read permission