



User Guide for NetWare

POWERQUEST

Server Image™

Server Image 1.0 for NetWare

User Guide

Server Image by PowerQuest

Manual Version 1

© 1994-1999 PowerQuest Corporation

All Rights Reserved. U.S. Patents 5,675,769 and 5,706,472, with other patents pending.

Printed in U.S.A.

The entire risk of the use or the result of the use of this software and documentation remains with the user. No part of this documentation may be reproduced or transmitted in any means, electronic or mechanical, for any purpose, except as expressed in the Software License Agreement.

Server Image incorporates LZS® compression from Hi/fn®, U.S. patents 4,701,745; 5,016,009; 5,126,739; 5,146,221; and 5,414,425. Drive Image, Drive Image Professional, PartitionMagic, PowerQuest, the PowerQuest mark, Server Image, SmartSector, and ImageShield are trademarks or registered trademarks of PowerQuest Corporation. DOS, Microsoft, Windows, Windows NT, and Windows 95 are trademarks or registered trademarks of Microsoft Corporation. NetWare is a registered trademark of Novell. Disk Manager is a trademark of OnTrack Corporation. EZ-Drive is a trademark of MicroHouse International. Norton Utilities and AntiVirus are trademarks of Symantec Corporation. Boot Manager is a trademark of International Business Machines Corporation. Jaz and Zip are registered trademarks of Iomega Corporation. Intel is a registered trademark of Intel Corporation. SyQuest is a registered trademark of SyQuest Corporation. All other brand and product names are trademarks or registered trademarks of their respective owners.

PowerQuest Corporation

P.O. Box 1911 • Orem, Utah 84059-1911 U.S.A.

Technical Support

Phone: 801-226-6834

Fax: 801-437-4218

E-mail: support@powerquest.com

Sales

Phone: 801-226-8977

Home page: <http://www.powerquest.com>

E-mail: sales@powerquest.com

PowerQuest® Server Image™ License Agreement

IMPORTANT: Read this before using your copy of PowerQuest Server Image.

This document is a legal agreement between you (an individual or business), the Licensee, and PowerQuest Corporation. Use of the enclosed software indicates your acceptance of these terms. As used in this License Agreement, the term "Software" means the software included on the CD or disk media provided with this License Agreement. The term "Software" does not include any software that is covered by a separate license offered or granted by a person other than PowerQuest Corporation.

IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, EITHER DESTROY OR RETURN, INTACT, THE SOFTWARE PACKAGE, CONTAINING THE CD OR DISK MEDIA, TOGETHER WITH THE OTHER COMPONENTS OF THE PRODUCT TO THE PLACE OF PURCHASE FOR A REFUND OF THE PURCHASE PRICE.

I. PROPRIETARY RIGHTS. The SOFTWARE and any accompanying documentation are the proprietary products of PowerQuest Corporation (PowerQuest) or its licensors and are protected under national laws and international treaty provisions. Ownership of the SOFTWARE and all copies, modifications, translations, and merged portions thereof shall at all times remain with PowerQuest or its licensors

II. GRANT OF LICENSE AND TERM. The SOFTWARE and accompanying documentation are being licensed to you, which means you have the right to use the SOFTWARE only in accordance with this License Agreement. The SOFTWARE is considered in use on a computer when it is loaded into temporary memory or installed into permanent memory.

PERSONAL LICENSE. This license is personal to you. You may not sublicense, lease, sell, or otherwise transfer the SOFTWARE or any of the accompanying documentation to any other person. You may use the SOFTWARE only for your own personal use if you are an individual, or for your own internal business purposes if you are a business. If you are a service bureau, integrator, value added reseller, or other type of service provider and wish to use this software on your clients' computers, you must use one of PowerQuest's VAR Licenses. For more information on PowerQuest's VAR Licenses, call PowerQuest's sales office at 801-437-8900 or 1-800-379-2566.

SERVER-SPECIFIC LICENSE. Each permitted copy of the SOFTWARE may be used only in connection with one network server owned or leased by you. Once a copy of the SOFTWARE has been used on a server, it may not be used on any other server. If the SOFTWARE is made available on a network, it may be accessed only by ONE specific computer. Once the SOFTWARE has been accessed by ONE specific computer, it may not be used on any additional computers without purchasing additional licenses.

NUMBER OF COPIES LICENSED. You are authorized to use ONLY a single copy of the SOFTWARE on the number of server(s) for which you have purchased a license as indicated on the accompanying license certificate. In addition to any copies authorized under this license agreement, you may make a single copy of the SOFTWARE solely for backup purposes. All copies of the SOFTWARE must include the copyright, trademark, and patent notices. To purchase a multiple computer LICENSE, contact PowerQuest at 1-800-379 2566 or sales@powerquest.com.

TERM. This license is effective from your date of purchase and shall remain in force until terminated. You may terminate the license and this License Agreement at any time by destroying the SOFTWARE and the accompanying documentation, together with all copies in any form.

III. BACKUP COPY. Only ONE copy of the SOFTWARE may be created for archival or backup purposes.

IV. NONPERMITTED USES. Without the express prior written permission of PowerQuest, you may not (a) use, copy, modify, alter or transfer, electronically or otherwise, the SOFTWARE or documentation except as expressly permitted in this License Agreement, or (b) translate, reverse program, disassemble, decompile, or otherwise reverse engineer the SOFTWARE.

V. EXPORT CONTROLS. Certain uses of the SOFTWARE by you may be subject to restrictions under U.S. regulations relating to exports and ultimate end uses of computer software. You agree to fully comply with all applicable U.S. laws and regulations, including but not limited to the Export Administration Act of 1979 as amended from time to time and any regulations promulgated thereunder.

VI. U.S. GOVERNMENT RESTRICTED RIGHTS. If you are acquiring the SOFTWARE on behalf of any unit or agency of the United States Government, the following provision applies: It is acknowledged that the SOFTWARE and the documentation were developed at private expense and that no part is in the public domain and that the SOFTWARE and documentation are provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable. Contractor/Manufacturer is PowerQuest Corporation/P.O. Box 1911/Orem, UT 84059-1911/U.S.A.

VII. LIMITED WARRANTY. (a) PowerQuest warrants to you, the original end user, (i) that the SOFTWARE, other than third-party software, will perform substantially in accordance with the accompanying documentation and (ii) that the SOFTWARE is properly recorded on the disk media. This Limited Warranty extends for ninety (90) days from the date of purchase. PowerQuest does not warrant any third-party software that is provided with the SOFTWARE, but PowerQuest

agrees to pass on to you any warranties of the owner or licensor to the extent permitted by the owner or licensor. (b) This Limited Warranty does not apply to any SOFTWARE that has been altered, damaged, abused, mis-applied, or used other than in accordance with this license and any instructions included on the SOFTWARE and the accompanying documentation. (c) PowerQuest's entire liability and your exclusive remedy under this Limited Warranty shall be the repair or replacement of any SOFTWARE that fails to conform to this Limited Warranty or, at PowerQuest's option, return of the price paid for the SOFTWARE. PowerQuest shall have no liability under this Limited Warranty unless the SOFTWARE is returned to PowerQuest or its authorized representative, with a copy of your receipt, within the warranty period. Any replacement SOFTWARE will be warranted for the remainder of the original warranty period or 30 days, whichever is longer. (d) THIS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR WARRANTIES ARISING FROM USAGE OF TRADE OR COURSE OF DEALING. (e) THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS; YOU MAY HAVE OTHERS WHICH VARY FROM STATE TO STATE. (f) Your Failure to return the enclosed registration card may result in PowerQuest's inability to provide you with updates to the SOFTWARE, and you assume the entire risk of performance and result in such an event.

VIII. LIMITATION OF LIABILITY. IN NO EVENT SHALL POWERQUEST'S LIABILITY RELATED TO ANY OF THE SOFTWARE EXCEED THE LICENSE FEES ACTUALLY PAID BY YOU FOR THE SOFTWARE. EXCEPT FOR A RETURN OF THE PURCHASE PRICE UNDER THE CIRCUMSTANCES PROVIDED UNDER THE LIMITED WARRANTY, NEITHER POWERQUEST NOR ITS SUPPLIERS SHALL IN ANY EVENT BE LIABLE FOR ANY DAMAGES WHATSOEVER ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE SOFTWARE, INCLUDING BUT NOT LIMITED TO DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR OTHER PECUNIARY LOSS, EVEN IF POWERQUEST CORPORATION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER SUCH LIABILITY IS BASED ON CONTRACT, TORT, WARRANTY, OR ANY OTHER LEGAL OR EQUITABLE GROUNDS. BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IX. This License Agreement constitutes the entire agreement between you and POWERQUEST pertaining to its subject matter. This License Agreement is governed by the laws of the State of Utah. Any litigation arising from this license will be pursued only in the state or federal courts located in the State of Utah. Even if part of the agreement is held invalid, the rest of the agreement is still valid, binding, and enforceable. The failure of either party to exercise a right does not waive future exercise of that right or other rights.

For further information: Should you have any questions concerning this Agreement, or if you desire to contact PowerQuest Corporation for any reason, please write: PowerQuest Corporation/P.O. Box 1911/Orem, UT 84059-1911/U.S.A.

© 1994-1999, PowerQuest Corporation. All rights reserved. U.S. Patents 5,675,769 and 5,706,472; other patents pending in the U.S.A. and elsewhere. PowerQuest is a registered trademark and Server Image is a trademark of PowerQuest Corporation.

Read this before using your copy of PowerQuest® Server Image™.

PowerQuest Corporation International Software License Agreement.

This Server Image License Agreement ("License") is a legal agreement between you, the "End User," and PowerQuest Corporation ("PowerQuest"). Use of the enclosed software indicates the End User acceptance of these terms. As used in this License, the term "SOFTWARE" means the Server Image software included on the CD or disk media provided with this License. The term "SOFTWARE" does not include any software that is covered by a separate license offered or granted by a person other than PowerQuest, and this License does not grant any rights in such software.

IF THE END USER DOES NOT AGREE TO THESE TERMS AND CONDITIONS, THE END USER MUST EITHER DESTROY OR RETURN, INTACT, THE SOFTWARE PACKAGE, CONTAINING THE CDs OR DISK MEDIA, TOGETHER WITH THE OTHER COMPONENTS OF THE PRODUCT TO THE PLACE OF PURCHASE.

1. **PROPRIETARY RIGHTS.** The Software and any associated documentation are proprietary products of PowerQuest or its licensors and are protected under U.S. and European copyright, trademark, patent, and trade secret laws and international treaty provisions. Sole ownership of the SOFTWARE and all copies, modifications, and merged portions thereof shall at all times remain with PowerQuest or its licensors.

2. **GRANT OF LICENSE.** PowerQuest hereby grants to the End User a non-exclusive, non-transferable license to use the SOFTWARE in accordance with the terms of this License. The SOFTWARE is considered in use on a computer when it is loaded into temporary memory or installed into permanent memory.

3. **COMPUTER-SPECIFIC LICENSE.** Each permitted copy of the SOFTWARE may be used only in connection with a hard drive(s) that is (are) permanently connected to ONE specific computer (either a stand-alone computer or a computer connected to a network) owned or leased by the End User. Once a copy of the SOFTWARE has been used on a computer, it may not be used on any other computer, unless the End User has permanently stopped using (e.g., sold, destroyed, or relinquished possession of) the computer on which the SOFTWARE was first installed and has removed the SOFTWARE from the original computer. If the SOFTWARE is made available on a network, it may be accessed only by ONE specific computer. Once the SOFTWARE has been accessed by ONE specific computer, it may not be used on any additional computers without purchasing additional licenses.

5. **CONFIDENTIALITY AND CONTROL OF THE SOFTWARE.** The SOFTWARE, all associated documentation, and all copies are secret and confidential to PowerQuest and shall be retained under the effective control of the End User during the period of this License. The End User shall take all measures necessary to preserve confidentiality and secrecy in the SOFTWARE during the period of this license and after its termination, however such termination may arise.

6. **PERSONAL LICENSE.** This License is personal (including with respect to corporate entities) to the End User and the End User shall not assign or transfer any interest in it or grant any right under it to any third party or seek to exercise this License for the benefit or on the data of any third party.

7. **UPDATES AND SUPPORT.** The End User is entitled to receive 45-days technical support from the date of purchase. Technical support shall be limited to telephone or e-mail support from PowerQuest's offices, unless PowerQuest specifically agrees otherwise. The End User is entitled to receive SOFTWARE updates (updates are only version number changes to the right side of the decimal) in accordance with PowerQuest policies as announced from time to time on terms comparable to those offered to other users of the SOFTWARE under the Server Image Licenses.

8. **INTEGRITY OF THE SOFTWARE.** The End User shall not enhance or vary any part of the SOFTWARE nor procure or permit the whole or any part of the SOFTWARE (whether in its original or in any updated, enhanced or varied form) to be incorporated into any other software or computer system. Translations, reverse programming, disassembling, and reverse engineering of the SOFTWARE are expressly prohibited. Provided, however, that nothing in these conditions shall restrict (i) decompilations, notwithstanding that decompilation may involve adaptation, if the sole purpose of such decompilation is to achieve the interoperability of an independently created program with other programs, or (ii) any other act permitted to the End User by applicable laws and regulations of the End User's jurisdiction.

9. **TERM AND TERMINATION.** (a) This License is effective from the date of purchase of the SOFTWARE and shall remain in force until terminated. The End User may terminate this License at any time by destroying the SOFTWARE and its associated documentation, together with all copies in any form. (b) Notwithstanding 9(a) above, this License may be terminated at any time by written notice of termination given by PowerQuest to the End User in any of the following circumstances: (i) If the End User shall expressly or impliedly repudiate this License by refusing or threatening to refuse to observe any of the conditions to which this License is subject; or (ii) If the End User shall fail to make any payment due under and pursuant to this License or to observe any of the conditions to which this License is subject and, after the End User's attention has been drawn by notice to such failure, shall fail to remedy the matter to PowerQuest's reasonable satisfaction within thirty days of the giving of such notice; or (iii) If the End User shall have a receiver or administrative receiver or administrator appointed or shall enter into liquidation whether compulsory or voluntary or if the End User shall be unable to pay its debts as and when they fall due. (c) On expiry, surrender or other termination of this License, however such termination may arise, the End User shall cease to load, store, copy, or use the Software and the associated documentation, shall delete the SOFTWARE from its

computers and shall either surrender the SOFTWARE and the associated documentation, together with all copies in any form, to PowerQuest or shall destroy the same. The End User shall continue after termination to observe and enforce confidentiality and secrecy in respect of the SOFTWARE and its associated documentation for the benefit of PowerQuest, and however termination may occur, it shall not prejudice any right of action or remedy which may have occurred prior to termination.

10. EXPORT CONTROLS. Certain uses of the SOFTWARE by the End User may be subject to restrictions under U.S. regulations relating to exports and ultimate end uses of computer software. The End User agrees to fully comply with all applicable U.S. laws and regulations, including but not limited to the Export Administration Act of 1979 as amended from time to time and any regulations promulgated thereunder.

11. LIMITED WARRANTY. (a) PowerQuest warrants to the End User, (i) that the SOFTWARE (not including any third-party software) will perform substantially in accordance with the associated documentation and (ii) that the SOFTWARE is properly recorded on the disk media. This Limited Warranty extends for ninety (90) days from the date of purchase. PowerQuest does not warrant any third-party software that is provided with the SOFTWARE, but PowerQuest agrees to pass on to the End User any warranties of the owner or licensor to the extent permitted by the owner or licensor. (b) This Limited Warranty does not apply to any SOFTWARE that has been altered, damaged, abused, mis-applied, or used other than in accordance with this License and any instructions included on the SOFTWARE and the associated documentation. (c) PowerQuest's entire liability under this Limited Warranty shall be the repair or replacement of any SOFTWARE. PowerQuest shall have no liability under this Limited Warranty unless the SOFTWARE is returned to PowerQuest or its authorized representative, with a copy of the End User's receipt, within the warranty period. Any replacement SOFTWARE will be warranted for the remainder of the original warranty period or 30 days, whichever is longer. (d) THIS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED, SUBJECT TO CONTRARY ORDER PUBLIC REQUIREMENTS IN THE END USER'S JURISDICTION.

12. INDEMNITIES AND LIMITATION OF LIABILITY. (a) Subject to 12(b) below, PowerQuest warrants to the End User that the Software as supplied by PowerQuest will not infringe any copyright, patent, or other intellectual property right of any third party. Conditionally upon the End User's promptly giving notice to PowerQuest of any claim of alleged infringement and allowing PowerQuest to have sole control of negotiations on, and any defense of the claim, PowerQuest shall in its discretion and at its own cost either compromise or defend the claim and shall hold the End User harmless from any resulting final judgment, order or settlement. PowerQuest shall have the right to replace or change the SOFTWARE so as to avoid infringement and require the End User to accept a license to use such replaced or changed SOFTWARE in substitution for this License, provided that the SOFTWARE as substituted is substantially suitable for the End User's utilization. (b) PowerQuest's maximum liability to the End User under 12(a) above shall not exceed the License fees actually paid by the End User for the SOFTWARE. If PowerQuest becomes aware of a potential claim under 12(a) above, PowerQuest shall be entitled then or at any time thereafter to discharge its liabilities (including potential, accruing, and accrued liabilities) to the End User under 12(a) above by requiring the End User to surrender this License and to cease use of the SOFTWARE upon PowerQuest's paying to the End User a sum equivalent to the maximum amount of PowerQuest's liability as stated above. (c) GENERAL LIMITATION OF LIABILITY AND INDEMNITIES. POWERQUEST'S MAXIMUM LIABILITY RELATED TO ANY OF THE SOFTWARE SHALL NOT EXCEED THE LICENSE FEES ACTUALLY PAID BY THE END USER FOR THE SOFTWARE.

FOR AUSTRIA, BELGIUM, CZECH REPUBLIC, FRANCE, HUNGARY, IRELAND, LUXEMBOURG, AND THE NETHERLANDS: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF (a) DEATH, PERSONAL INJURY OR DAMAGE TO PROPERTY CAUSED BY POWERQUEST'S NEGLIGENCE OR (b) POWERQUEST'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR GREECE: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF DEATH, DAMAGE TO PROPERTY OR PERSONAL INJURY CAUSED BY POWERQUEST'S FRAUD OR GROSS NEGLIGENCE, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR ITALY: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF DEATH, DAMAGE TO PROPERTY OR PERSONAL INJURY CAUSED BY POWERQUEST'S FRAUD OR GROSS NEGLIGENCE OR VIOLATION OF A DUTY ARISING FROM APPLICABLE ORDINE PUBBLICO RULES, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE

TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR DENMARK, FINLAND AND NORWAY: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT (i) IN RESPECT OF DEATH OR PERSONAL INJURY CAUSED BY POWERQUEST'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OR (ii) IF SUCH LIABILITY LIMITATION IS UNREASONABLE UNDER ALL RELEVANT CIRCUMSTANCES, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR PORTUGAL: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF DEATH, DAMAGE TO PROPERTY OR PERSONAL INJURY CAUSED BY POWERQUEST'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE AND WHETHER OCCASIONED BY POWERQUEST'S NEGLIGENCE OR ITS AGENTS OR OTHER REPRESENTATIVES) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR SPAIN: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF DEATH, DAMAGE TO PROPERTY OR PERSONAL INJURY CAUSED BY POWERQUEST'S BAD FAITH CONDUCT, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR SWEDEN, SWITZERLAND: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF DEATH, DAMAGE TO PROPERTY OR PERSONAL INJURY CAUSED BY POWERQUEST'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

FOR THE UNITED KINGDOM: IN NO EVENT SHALL POWERQUEST BE LIABLE TO THE END USER, EXCEPT IN RESPECT OF (a) DEATH OR PERSONAL INJURY CAUSED BY POWERQUEST'S NEGLIGENCE OR (b) DAMAGE TO PROPERTY OR OTHER LOSS CAUSED BY POWERQUEST WHERE SUCH LIABILITY LIMITATION IS UNREASONABLE UNDER ALL RELEVANT CIRCUMSTANCES. FOR AN AMOUNT IN EXCESS OF THE MAXIMUM AMOUNT OF POWERQUEST'S LIABILITY AS STATED IN 12(b) ABOVE, BY REASON OF ANY REPRESENTATION OR IMPLIED WARRANTY, CONDITION OR OTHER TERM OR ANY DUTY AT LAW, OR UNDER THE TERMS OF THIS AGREEMENT, FOR ANY CONSEQUENTIAL LOSS OR DAMAGE (WHETHER FOR LOSS OF PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR OTHERWISE) ARISING OUT OF OR IN CONNECTION WITH ANY ACT OR OMISSION OF POWERQUEST RELATING TO THE USE OR INABILITY TO USE THE SOFTWARE BY THE END USER.

13. This License constitutes the entire agreement between the End User and PowerQuest pertaining to its subject matter. This License is governed by the laws of the State of Utah (except that body of laws controlling conflict of laws).

For further information: Should the End User have any questions concerning this Agreement, or if the End User desires to contact PowerQuest for any reason, please write: PowerQuest Corporation. P.O. Box 1911/Orem/UT 84059-1911 U.S.A.

© 1994–1999, PowerQuest Corporation. All rights reserved. U.S. Patents 5,675,769 and 5,706,472, with other patents pending. PowerQuest is a registered trademark and Server Image is a trademark of PowerQuest Corporation.

Table of Contents

Introduction

What is Server Image?	1
Server Image System Requirements	3

Chapter 1: Getting Started

Installing Server Image	6
Before Using Server Image	6
Loading External Drive Device Drivers from DOS	6
External Drive Manufacturer's Contact Information	6
Running Server Image	7
Running Server Image from the CD-ROM	7
Running Server Image from a Floppy Diskette	7
Using Server Image in a Network Environment	8
Creating a NetWare Boot Diskette	8
Using Jaz, Zip, and SyQuest Parallel Port Devices with a NetWare Client	8
Uninstalling Server Image	8

Chapter 2: Menu Options

Tools Menu Options	10
Create Extended Partition	10
Delete Partitions	11
Hide/Unhide Partitions	12
Set Active Partition	14
Help Menu Options	15
Contents	15
About	15

Chapter 3: Creating Image Files

Preparation	18
Procedure	18
Advanced Options	25
Check for File System Errors	25
Disable SmartSector Copying	26
Verify Disk Writes	26
ImageShield	26
Split Image File Into Multiple Files	26
Scenarios	27
Creating an Image File on a Zip Drive	27
Storing an Image File on CD-ROM	28

Chapter 4: Restoring Image Files

Procedure	32
Resize Options	39
Automatically resize partitions proportionally to fit	39
Leave remaining free space	39
Resize partitions manually to fit	39
Advanced Options	40
Skip Bad Sector Check	40
Verify Disk Writes	40
Hide Partition After Restore	40
Scenarios	41
Restoring an Image File from a Zip Drive	41
Restoring an Image File from a CD-ROM Drive	43

Chapter 5: Deploying NetWare Servers

Using Server Image to Deploy NetWare Servers	46
Server name	46
IPX Internal Network Number	46
NIC Driver	47
NIC I/O Address and Slot Number	47
Network Segment Number	47
Server License	47
Deploying a New Server	48
Hardware Configurations	49
Using Hide/Unhide for Disaster Recovery	49

Chapter 6: Interactive vs. Batch Mode

Command Line Switches	52
Command Line Examples	53
Script Files	54
Script File Examples	55

Appendix A: Additional Resource Information

Hard Drive Manufacturer Contact Information	58
Contact Information	58
Fujitsu	58
Maxtor	58
Quantum	58
Samsung Electronics America	59
Seagate/Conner	59
Western Digital	59
Using FDISK and FORMAT to Create and Format Partitions	60
Scenario 1:	60
Scenario 2:	61
Using Server Image with SCSI Hard Drives	62
Assigning a CD-ROM Drive Letter	62

Appendix B: Troubleshooting

Frequently Asked Questions	66
Freeing Memory to Run Server Image	66
Running MEMMAKER	66
Using the F8 Key to Keep Programs From Loading	66
Creating an Operating System Boot Diskette	67
Creating a CONFIG.SYS File on the Boot Diskette	67
Deleting Operating System Compression Files	68
Resolving Partition Table Errors	69
Partition Tables and Viruses	70

Appendix C: PowerQuest Technical Support

Before You Contact Technical Support	72
PowerQuest Problem Report	73
Contacting PowerQuest Technical Support	74
Fax	74
Faxback	74
Postal Service Mail	74
E-mail	75
Telephone	75
PowerQuest Newsletter and Internet Address	76

Glossary

Index

Introduction

What is Server Image?

Setting up servers is a time-consuming and costly process. Long hours are spent installing and configuring operating systems and software individually on each server. Companies need a fast, inexpensive solution for setting up new servers and/or upgrading existing servers.

Server Image is designed for NetWare administrators who need a fast, effective, and complete system for server deployment. With Server Image, you can easily create images of NetWare partitions, including the DOS boot partition, and store the images on removable media, local, or network hard drives, even CD-Rs once the image has first been created on another media. Using patent-pending SmartSector™ technology, Server Image is able to create compressed image files of DOS and NetWare partitions, greatly reducing the amount of room required to store image files. Once created, you may use the server images to deploy new servers for your organization and to quickly bring servers online.

Server Image, with its SmartSector technology, is up to ten times faster than other image methods using straight file-by-file methods, because it records using only the used data sectors. The speed with which Server Image operates saves administrators valuable time when deploying servers.

PowerQuest's Server Image lets you easily create a compressed image file of an entire hard drive or of individual partitions. Image files can be stored on a network, secondary hard drive, or other removable media device. Simply download the image file from the source to quickly set up new servers. With Server Image, image files can be applied to same-size drives or resized to fit drives of a different size and geometry.

Server Image runs in either interactive or batch mode, allowing you to customize the program's operation to fit your needs. Interactive mode gives you control plus efficiency when working with one or two servers, while batch mode allows you to easily automate the setup process for deploying multiple servers.

NOTE: Currently, Server Image does not support creating image files directly on CD-R or tape drives. You must first save image files to a supported source (hard drive, Zip drive, etc.), then copy them to CD-R or tape. Server Image can, however, directly restore image files from CD-R.

Furthermore, image files can only be saved to devices that have a valid drive letter. The user is primarily responsible for loading the necessary drivers for his/her data storage devices so that DOS can correctly assign drive letters.

Server Image is optimized for use with NetWare 3.12, 4.10, 4.11, and 5.0, and all versions of DOS and MS-DOS 5.0 and above. Server Image also supports the file systems of all versions of Windows 95, Windows NT, Windows 3.x, and OS/2, including FAT16, FAT32, FAT32X, NTFS, and HPFS partition types. Because Server Image understands the internal structure of these file systems, partition resizing and fast SmartSector copying can occur. PowerQuest recommends you use Server Image for imaging the DOS and NetWare partitions on NetWare servers and use Drive Image or Drive Image Pro for workstations.

Server Image is a DOS-based program that can be run from the hard drive in DOS or MS-DOS mode or from a floppy diskette after booting DOS. Only by running in DOS is the hard drive completely inactive with no open files.

Server Image System Requirements

Hardware/Software	Minimum	Recommended
Processor	Intel 386SX	Intel 486 or above
RAM	8 MB (16 MB required for FAT32 or NTFS)	32 MB (48 MB for FAT32 partitions larger than 6 GB)
3.5-inch diskette drive	None	3.5-inch diskette drive
CD-ROM drive	Any speed	Any speed
Hard drive free space	2 MB	2 MB
Operating System	DOS 5.0	DOS 6.22 or 6.3
Monitor	VGA	SVGA
Pointing Device	No pointing device is required to operate Server Image.	Microsoft mouse (or compatible pointing device)

IMPORTANT! Because of operating system conflicts that can result from different hardware configurations, Server Image is not intended to copy or image a hard drive used in a system with different hardware configurations. If you create an image of one server and wish to restore the image on a machine with a different configuration (e.g., network interface card, IDE vs. SCSI drives, etc.), the server may not boot correctly. Therefore, we recommend verifying and restoring to similar hardware configurations.

NOTE: Any discussion of deployment, including hard-disk imaging, assumes that the software, including the operating system, is being copied in accordance with the license agreements with the software manufacturers.

Getting Started

This chapter contains the following information:

Installing Server Image

Before Using Server Image

Loading External Drive Device Drivers from DOS

Running Server Image

Using Server Image in a Network Environment

Uninstalling Server Image

Installing Server Image

You can install Server Image from DOS, version 5.0 or later.

To install Server Image:

1. Insert the ServerMagic CD into your CD-ROM drive.
2. At the DOS prompt, change to the CD-ROM drive.
3. Run INSTALL.BAT from the \SIMAGE directory.
4. Click **Next** and follow the on-screen instructions.

Before Using Server Image

Before using Server Image, it is important that you run a disk utility such as ScanDisk or CHKDSK on each partition of the source drive to check for file system errors.

Loading External Drive Device Drivers from DOS

To use Server Image with external drives, you must load the external device drivers from DOS. For specific information on setting up a DOS bootable floppy or loading a DOS device driver, contact your manufacturer directly. See the following section for a listing of External Drive Manufacturer's Internet addresses.

External Drive Manufacturer's Contact Information

Iomega:

<http://www.iomega.com>

SyQuest:

<http://www.syquest.com>

Cheyenne:

<http://www.cheyenne.com>

Panasonic:

<http://www.panasonic.com>

Running Server Image

There are two ways to run Server Image. You can run Server Image from the hard drive if you booted in DOS or MS-DOS mode or from the CD-ROM.

Running Server Image from the CD-ROM

1. Boot with a floppy disk.
2. Run PQSI.EXE from the CD.

If you want to run Server Image from your hard drive:

1. At a DOS prompt, change to the drive and directory which contains Server Image.
2. Type PQSI.EXE.

Running Server Image from a Floppy Diskette

1. Insert a bootable diskette.
2. Reboot your machine.
3. Insert your Server Image program diskette. Type **A:\PQSI** and press <Enter>.

NOTE: The mouse driver is automatically loaded by PQSI.EXE. If you have a low-memory situation and need to load the server after using Server Image, type the command **MOUSE OFF** in the \SIMAGE directory to unload the mouse driver. This will increase available RAM for use by other programs by approximately 100 KB.

Using Server Image in a Network Environment

Server Image simplifies the installation of network operating systems and/or software to multiple servers by creating image files that may be distributed from a central server.

Creating a NetWare Boot Diskette

To upload or download image files, computers running DOS must be able to connect to the desired server, which requires a network boot diskette.

To create a NetWare boot diskette:

1. Create a DOS boot diskette using the `FORMAT /S` command.
2. Copy the following files to the formatted system diskette:
 - LSL.COM
 - <the network interface card driver>
 - IPXODI
 - Any VLMs appropriate to your network

After the network files and drivers are copied to the boot diskette, booting any DOS computer from the diskette will bring up the standard NetWare login prompt.

Using Jaz, Zip, and SyQuest Parallel Port Devices with a NetWare Client

Loading a parallel port device with a network client in memory may cause the system to hang. To successfully load the device driver for a parallel port drive, reboot the system without loading the network client.

Uninstalling Server Image

To uninstall Server Image:

Change to the drive where \SIMAGE is located.

1. Type `DEL TREE SIMAGE` and press <Enter>. Press <Y> and <Enter> to confirm the deletion.

C H A P T E R

2

Menu Options

This chapter contains the following information:

Tools Menu Options

Help Menu Options

Tools Menu Options

The Tools drop-down menu on the Server Image main screen lets you manually perform some common partition-management tasks that Server Image automatically performs when it processes image files or when it copies partitions. The Tools menu gives you access to these useful features without requiring you to create or restore image files.

Create Extended Partition

If you create an image of a primary partition and want to restore it as a logical partition, you must first have an extended partition on your hard drive.

NOTE: It is not necessary to manually create an extended partition when you restore an image of a logical partition. Server Image automatically creates an extended partition if one does not already exist.

To create an extended partition:

1. At the Server Image main screen, select **Tools > Create Extended Partition**.

The **Create Extended Partition** window appears.



Create Extended Partition

2. If you have more than one hard drive on your system, select the desired drive from the **Physical Drives** drop-down list box.

3. Select a free space.

A check mark appears to the left of the selected free space.

If there is no free space (unpartitioned area) on your drive, you must delete an existing partition to create free space.

4. Click **Create**.

Server Image creates an extended partition in the selected free space.

5. Click **Close** to return to the Server Image main screen.

Delete Partitions

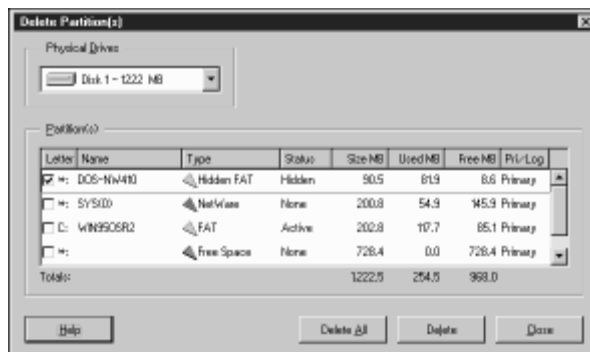
This feature deletes existing partitions to create free space on your hard drive.

WARNING! Be aware that deleting existing partitions DESTROYS any data they contain.

To delete partitions:

1. At the Server Image main screen, select **Tools > Delete Disk Partition(s)**.

The **Delete Partition(s)** window appears.



Delete Partitions

2. If you have more than one hard drive on your system, select the desired drive from the **Physical Drives** drop-down list box.

3. Select the partition you wish to delete.

A check mark appears to the left of the selected partition.

4. Click **Delete**.

The following message appears:

"Selected partition:<partition letter>. Deleting this partition will DESTROY any existing data! Current volume label is <volume label>. Enter current volume label to confirm partition deletion:"

5. Type the volume label, and click **OK**. Server Image deletes the partition and displays the message: "Volume <volume name> was deleted successfully."

For NetWare partitions, type UNKNOWN as the partition label.

6. Click **Close** to return to the Server Image main screen.

Hide/Unhide Partitions

The **Hide/Unhide** feature allows you to protect partitions from unwanted user access. When you hide a partition, it is inaccessible. If you unhide a partition, it is accessible again.

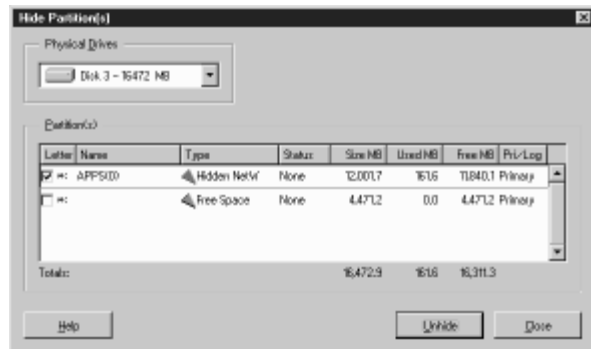
WARNING! Before hiding and unhiding partitions, be aware of the following:

- Hiding or unhiding a partition can cause the drive letters of subsequent partitions to change. This may make the computer fail to boot or cause applications to fail. If your hard drive contains more than one primary partition, only one is visible by default. When you use the **Set Active Partition** feature, Server Image unhides the selected primary partition and automatically hides all other primary partitions (for more information, see the following section).
- Because a hidden partition is not bootable or accessible, if you hide the partition where Server Image is installed, you must re-install Server Image on your new active (bootable) partition to run it again.

To hide/unhide partitions:

1. At the Server Image main screen, select **Tools > Hide/Unhide Partition(s)**.

The **Hide Partition(s)** window appears.



Hide partitions

2. If you click on a visible partition, the **Hide** button is available.
Click **Hide** to hide the selected partition. The partition status changes to "Hidden."
3. If you click on a hidden partition, the **Unhide** button is available.
Click **Unhide** to unhide the selected partition. The partition status changes to "None."
4. Click **Close** to return to the Server Image main screen.
5. Click **Exit** to exit Server Image.
6. Reboot your computer.

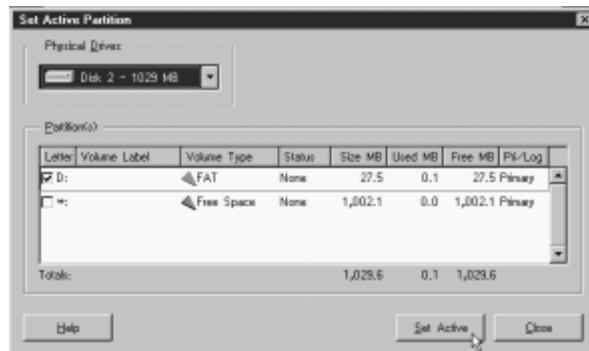
Set Active Partition

The **Set Active Partition** feature allows you to make a primary partition the active (bootable) partition. Only one primary partition can be active at a time. To be bootable, a primary partition must be located on the first (Master) drive, and it must contain an operating system. When your computer boots, it scans the partition table of the first drive to find the active partition, then boots from that partition.

WARNING! Before you set an active partition, be sure it is bootable. If it is not bootable or if you are not sure, locate a boot disk. If you restart your computer, and it does not boot normally, you must boot from your floppy disk, run Server Image from the CD-ROM, and set a different active partition.

1. At the Server Image main screen, select **Tools > Set Active Partition**.

The **Set Active Partition** window appears.



Set Active Partition

2. Make sure that **Disk 1** is selected in the **Physical Drives** drop-down list box.
3. Select a primary partition that is not currently active.
A check mark appears to the left of the selected partition.
4. Click **Set Active**.
The status of the selected partition changes to "Active."
5. Click **Close**.
6. Click **Exit** to exit Server Image.
7. Reboot your computer.

Help Menu Options

Server Image provides online help to assist you in performing various tasks. The Help Menu at the Server Image main screen gives you a brief overview of the online help system, lets you access the Help Index, and provides information about Server Image. In addition to the **Help** menu, you can press <F1> at any time to access the **Help Index**.

Contents

1. Select **Help > Contents** to display general instructions for using Server Image Help.
2. Click **Show Index** to display a list of all help topics. Double-click a topic to display information on that subject.
3. Click **Close** to exit Help and return to the Server Image main screen.

About

Select **Help > About** to display Server Image's version, copyright, and patent information as well as PowerQuest contact information.

C H A P T E R

3

Creating Image Files

This chapter contains the following information:

Preparation

Procedure

Advanced Options

Scenarios

Preparation

1. Before running Server Image, use a disk utility program such as ScanDisk or Norton's Disk Doctor to identify and repair any errors on your hard drive.

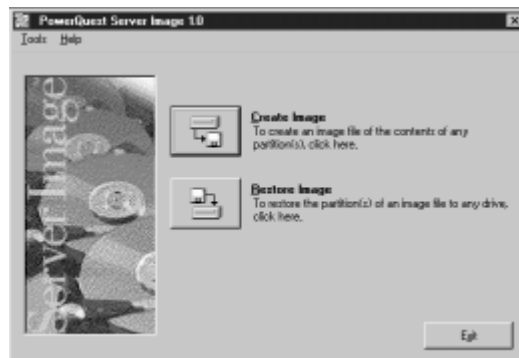
NOTE: NT users should run CHKDSK /F.

2. You may also choose to run a disk defragmenting utility to further optimize your hard drive.

Procedure

To create an image of the contents of any partition:

1. At the Server Image main screen, click **Create Image**.



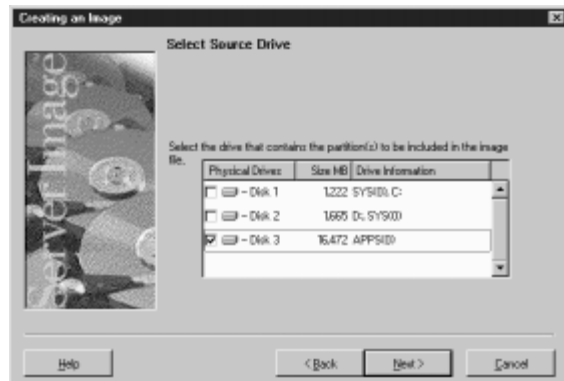
Server Image Main Screen

If you have only one hard drive, skip to step 4.

2. If you have more than one hard drive, select the drive that contains the partitions you wish to include in the image file.

A check mark appears to the left of the selected drive.

NOTE: Because DOS is limited to eight drives, you will not be able to see or manipulate drives past the eight-drive limit.



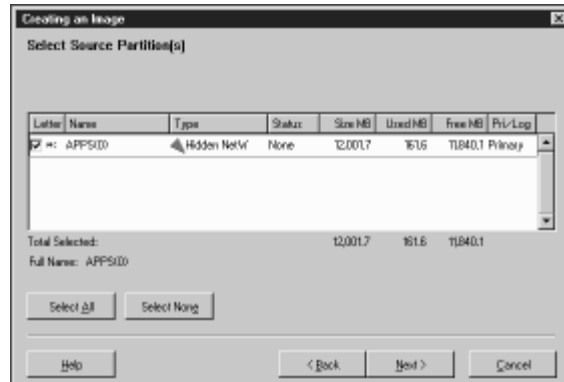
Select Source Drive

3. Click **Next**.

NOTE: At any point prior to actual image file creation, you may click **Back** to return to the previous step and change your settings.

4. Select the source drive partitions you wish to include in the image file, or click **Select All** to automatically select all partitions.

A check mark appears to the left of the selected partitions.



Select Source Partition

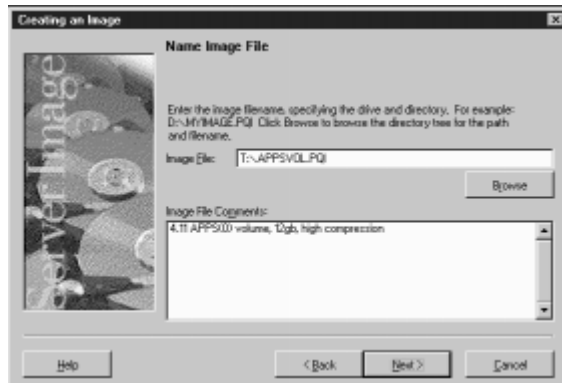
To deselect partitions, click again on a partition, or click **Select None** to deselect all partitions at once.

The **Total Selected** field keeps a running total of the disk space for all selected partitions, as well as the total used and free space within the partitions.

5. Click **Next**.

6. Type the desired path and image filename in the Image File field, for example:
D:\MYIMAGE.PQI.

NOTE: Server Image uses .PQI as the default image filename extension.



Name Image File

NOTE: You must save your image file to a partition that you are NOT including in your image file.

If the drive and directory are not specified in the filename, Server Image automatically saves the image file to the Server Image program directory, \SIMAGE.

You may also click **Browse** to browse the directory tree for your desired path and/or filename. If you select a pre-existing image file, the following message appears:

“Image File already exists. Do you want to replace file? Yes/No. WARNING: Existing data in file will be lost.”

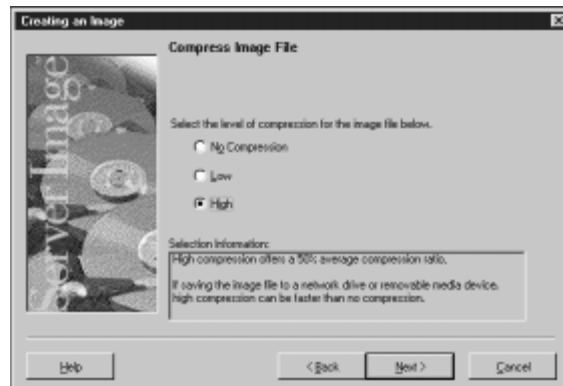
If **Yes** is selected, Server Image immediately deletes the existing file.

You can save your image file to any physical or logical drive which has a drive letter. That includes floppy drives, secondary hard drives, network drives, and removable media storage devices such as Jaz, Zip, SyQuest drives, etc. (For more information, see “Scenarios” on page 27.)

NOTE: You can type brief comments about your image file in the **Image File Comments** field.

7. Click **Next**.

8. Select the desired compression level.
- **No Compression** is the fastest method for creating an image file and is useful if storage space is not an issue. (For an exception to this, see the tip below.) Server Image selects **No Compression** by default.
 - **Low** offers a 40% average compression ratio.
 - **High** offers a 50% average compression ratio.



Compress Image File

TIP: If you are saving your image file to a busy network drive or to a relatively slow removable media device, compression may be faster than no compression, since there is less data to write to the file.

9. Click **Next**.

Server Image displays all the information you have entered to this point:

- Source Drive
- Source Partitions (partitions to be included in the image file are marked with an "X")
- Image Filename
- Compression Level



Ready to Create Image File

If you wish to modify any settings, click **Back** to backtrack and make changes.

10. Click **Advanced Options** to set such options as disabling file system error-checking or password-protecting your image file.

NOTE: For information on Advanced Options settings, see "Advanced Options" on page 25.

11. Click **Finish to begin creating the image file.**

If Server Image detects that you are saving your image file to a floppy drive or removable media, it enables a media-spanning feature that spreads the image file over a series of disks. Server Image permits you to span a maximum of 50 disks with a limit of 12 partitions per image file. You must have at least 100K of available space on each disk in the series. If you use the media-spanning feature, be sure to number the disks in order, since you must insert them in sequence when restoring the image file. (For more information, see “Creating an Image File on a Zip Drive” on page 27.)

The **Creating the Image** dialog appears, tracking the following items:

- Image filename
- Estimated megabytes to copy
- Total megabytes copied
- Entire process progress bar
- Information about current partition (volume, type, size MB, used MB, free MB)
- Sub-process progress bar
- Transfer rate for current partition
- Total megabytes copied for current partition
- Time elapsed
- Estimated time remaining

Upon completion, the following message appears: “Image was copied successfully to file: <image filename>.”

12. Click **OK to return to the Server Image main screen.**

Advanced Options

The **Create Image Advanced Options** group box appears when you click **Advanced Options** at the **Ready To Create Image File** screen. The following options are available from the **Create Image Advanced Options** group box:



Create Image Advanced Options

Check for File System Errors

Unmark the **Check for File System Errors** check box if you want to disable error checking.

If you have already used a disk utility program such as ScanDisk to check your hard drive for errors, it is not necessary to have Server Image check for file system errors. Unmarking **Check for File System Errors** saves time in creating the image file.

If you did not run a disk utility program before loading Server Image, leave the **Check for File System Errors** check box marked.

Disable SmartSector Copying

Server Image's SmartSector technology speeds up the data copying process by only copying clusters and sectors that contain data. However, in some cases, such as high-security environments, it may be desirable to copy all clusters and sectors in their original layout, whether or not they contain data.

If you wish to copy both used and unused clusters and sectors, mark the **Disable SmartSector Copying** check box.

NOTE: Disabling SmartSector copying increases processing time.

Verify Disk Writes

Mark the **Verify Disk Writes** check box if you want to enable DOS disk write verification.

NOTE: Disk write verification is not critical to safely create image files. Enabling disk write verification can slow the image file create process by as much as seven times.

ImageShield

If you wish to password-protect your image file, mark the **Password Protect Image File** check box, and type a password in the **Password** field.

IMPORTANT! Be sure to note image file passwords and store them in a safe place. If you forget an image file's password, you cannot restore the file.

Split Image File Into Multiple Files

Because Server Image does not directly support CD-R, it cannot span large image files over several CDs. Therefore, you must force Server Image to split the large file into smaller, discrete files which you can save to CDs after you exit Server Image (see "Storing an Image File on CD-ROM" on page 28).

To force Server Image to split large image files into smaller files, mark the **Split Image File Into Multiple Files** check box, and enter the maximum byte size for each file in the **File Size (bytes)** field. If you wish to save the files to CDs, specify a file size of 650,000,000 bytes (650 MB) or less.

Scenarios

Creating an Image File on a Zip Drive

Sample System Configuration

One 1.2 GB hard drive containing:

- One active primary DOS partition (C:); 50 MB used and 100 MB unused.
- One NetWare 4.11 partition containing SYS(0); 700 MB used and 350 MB unused.

One Zip drive (E:).

Objective

Create an image file of your DOS and NetWare partitions, and store them on your Zip drive.

Procedure

1. Down the server and reboot to a DOS prompt. Ensure your machine is configured correctly to read and write to the Zip drive.
2. Since the image will be too large to fit on one Zip disk, you must create a series of Zip disks.

Label the first Zip disk as "MYIMAGE DISK #1". During the image file creation process, Server Image prompts you to insert new disks as needed. Label each successive disk "MYIMAGE DISK #2," "MYIMAGE DISK #3," etc.
3. Insert the Zip disk labeled "MYIMAGE DISK #1" into your Zip drive, then run Server Image.
4. From the main screen, click **Create Image**.
5. Disk 1 (your hard drive) should already be selected. Click **Next**.
6. Select the **DOS** and **NetWare partitions**, then click **Next**.
7. In the **Image File** field, type E:\MYIMAGE.PQI. Enter any comments (optional), then click **Next**.
8. Select **High compression**, then click **Next**.

High compression compacts the image of your partitions by approximately 50%.

9. From the **Ready to Create Image File** screen, click **Advanced Options**.
10. Unmark the **Check for File System Errors** box, then click **OK**.
11. Click **Finish**.
12. When Server Image prompts you to insert the next disk in the series, wait until the busy light on the Zip drive goes out, remove "MYIMAGE DISK #1" from the Zip drive, and insert "MYIMAGE DISK #2".
13. After Server Image has completed the image create process, click **OK** to return to the Server Image main screen and exit the program.

Result

Your DOS and NetWare partitions are stored on several Zip disks (depending on how much data was in the partitions) in a spanned image file. You can restore these partitions to any hard drive which has at least 1.2 GB of available space.

Storing an Image File on CD-ROM

Sample System Configuration

One 3 GB hard drive containing:

- One active primary MS-DOS partition (C:); 60 MB used and 140 MB unused.
- One NetWare 5.0 partition containing SYS(0) and APPS(0); 2.2 GB used and 600 MB unused.

One CD-ROM drive (D:).

Objective

Create an image file of your NetWare 5 partition, and store it on CD-ROM.

Procedure

1. Since the image file will be too large to fit on one CD, you must create a series of CDs.
Label the first CD as "NW5 #1" and the second as "NW5 #2", etc.
2. Down the server and reboot the machine, logging into the network so you can save the image to a network drive.
3. Run Server Image.

4. From the Server Image main screen, click **Create Image**.
5. **Disk 1** (your hard drive) should already be selected. Click **Next**.
6. Select the **NetWare partition**.
7. In the **Image File** field, type `<drive letter>:\NW5.PQI`, where *drive letter* is a network drive where you have full rights. Enter any comments (optional). Click **Next**.

Because Server Image does not directly support CD-ROM, you must first save the image file to a partition on your hard drive, a secondary hard drive, a network drive, or a removable media device. In this scenario, you must save NW5.PQI to the network.
8. Select a **compression level**, then click **Next**.
9. From the **Ready to Create Image File** screen, click **Advanced Options**.
10. Unmark the **Check for File System Errors** box.
11. Mark the **Split Image File Into Multiple Files** check box and enter **650,000,000** in the **File Size** (bytes) field. Click **OK**.
12. Click **Finish**.
13. After Server Image has completed the image create process, click **OK** to return to the Server Image main screen and exit the program.
14. Change to the network drive and directory to view the image file listing. You will find several image files, NW5.PQI, NW5.002, NW5.003, etc., on the network.
15. Using a third-party CD authoring program, such as Adaptec's CD Creator, burn NW5.PQI onto your CD labeled "NW5 #1" and NW5.002 onto the CD labeled "NW5 #2," etc.

Result

Your 2.8 GB NetWare partition is stored on CD-ROMs in several separate image files. You can restore this NetWare partition to any hard drive that has at least 2.8 GB of available space.

Restoring Image Files

This chapter contains the following information:

Procedure

Resize Options

Advanced Options

Scenarios

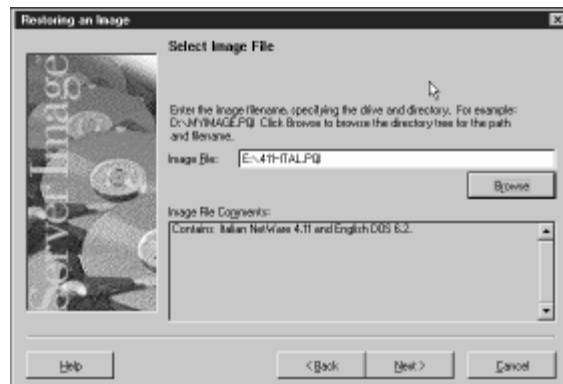
NOTE: Any discussion of deployment, including hard-disk imaging, assumes that the software, including the operating system, is being copied in accordance with the license agreements with the software manufacturers.

Procedure

To restore an image file to any drive:

1. At the Server Image main screen, click **Restore Image**.
2. In the **Image File** field, enter the complete filename of the image file you wish to restore, or click **Browse** to browse the directory tree for the desired path and image filename.

NOTE: If you need to access your CD-ROM drive from Server Image, you need to add the command in the CONFIG.SYS file to load your CD-ROM driver and add the command in the AUTOEXEC.BAT file to load the CD-ROM extensions, for example, MSCDEX.EXE.



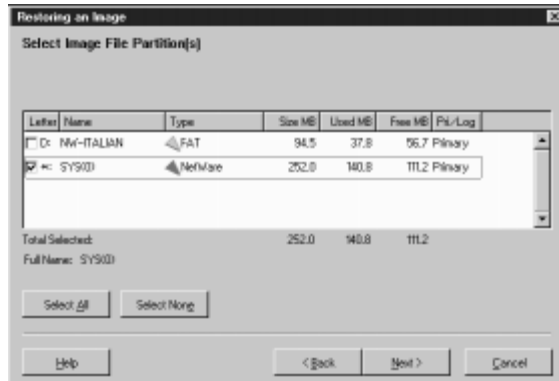
Select Image File

3. Click **Next**.

NOTE: At any point prior to actual image file restore, you may click **Back** to return to the previous step and change your settings.

4. Select the image file partitions you wish to restore, or click **Select All** to automatically select all partitions.

A check mark appears to the left of the selected partitions.



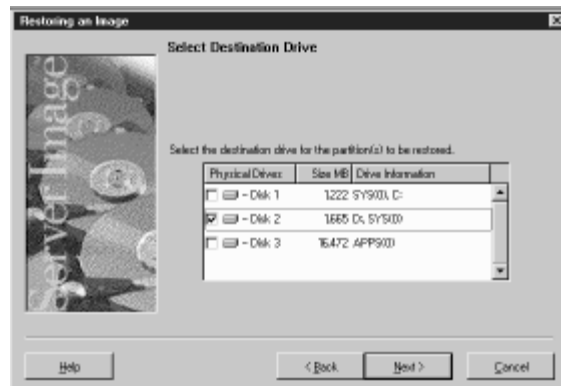
Select Image File Partition

To deselect partitions, click again on a partition, or click **Select None** to deselect all partitions at once.

The **Total Selected** field keeps a running total of the disk space for all selected partitions, as well as the total used and free space within the partitions.

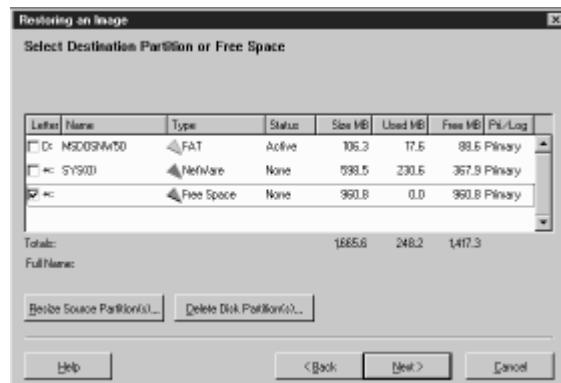
5. Click **Next**.

6. Select the drive to which you want to restore the image file.



Select Destination Drive

7. Click **Next**.
8. Select an existing partition or free space (non-partitioned disk space).

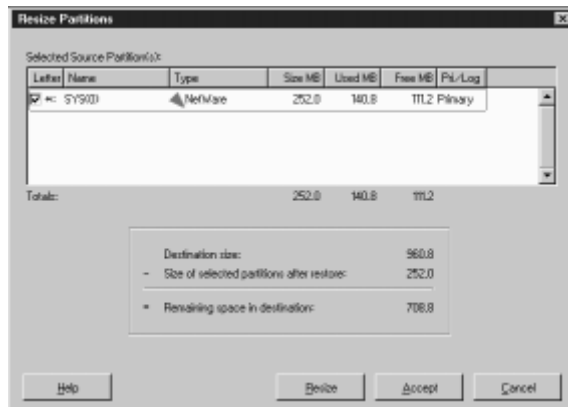


Select Destination Partition or Free Space

9. If the destination partition or free space is not large enough to accommodate the partitions you wish to restore, or if you are restoring the image file to a larger drive and want to set a specific size for partitions rather than use the proportional resize option, you can click **Resize Partitions** to specify different sizes for restored partitions. To resize partitions:

a. Click **Resize Partitions**.

The **Resize Partitions** window appears.



Resize Partitions: Main Window

The **Selected Source Partitions** group box displays the partitions you selected to restore.

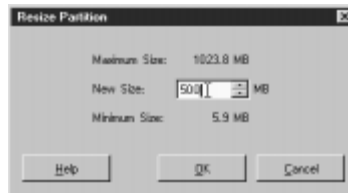
The **Totals** field displays the disk space for the source partitions, as well as the total used and free space within the partitions.

A formula box below the **Totals** field displays the following information:

- Destination Size
- Current Size of Selected Partition
- Remaining Space in Destination

- b. Click **Resize**.

The **Resize Partition** window appears.



Resize Partition: Enter New Size

Maximum Size displays the largest possible size the source partitions can have and still fit in the destination space.

Minimum Size shows the smallest possible size the source partitions can occupy.

- c. In the **New Size** field, enter a number that is less than the **Maximum Size** and greater than or equal to the **Minimum Size**.
- d. Click **OK**.

Since partitions must end on a cylinder boundary, Server Image rounds the **New Size** up to the next cylinder boundary.

- e. Click **Accept**.

Later, when you restore the image file, Server Image resizes the partition.

10. Click **Next**.

If you selected an existing partition as the destination, the following message appears:

“Item selected is not free space. Disk Images can only be restored into existing free space. Server Image will delete this partition before restoring disk image. WARNING: Deleting a partition will DESTROY any existing data on that partition.”

Server Image does not delete the partition until you click **Finish** on the **Ready to Restore Image File** screen.

If the free space on the destination drive is greater than the space required to restore the selected partitions, the **Resize Options** dialog appears.

NOTE: For information about resize option settings, see “Resize Options” on page 39.

11. Server Image displays all the information you have entered to this point:

- Image filename
- Selected image file partitions
- Destination drive
- Destination space



Ready to Restore Image File

If you wish to alter any settings, click **Back** to backtrack and make changes.

12. If you wish to enable bad-sector checking or hide partitions after restore, click **Advanced Options**.

For information on Advanced Options settings, see "Advanced Options" on page 40.

WARNING! Restoring multiple logical partitions can cause the drive letters of subsequent partitions to change. This may make the computer unbootable or cause applications to fail.

13. Click **Finish to begin restoring the image file.**

If you assigned a password to the image file when you created it, the **Get Image File Password** dialog appears. You must enter the password in order to restore the image file.

If Server Image detects that you are restoring your image file from a floppy drive or removable medium, it enables a media-spanning feature that is capable of reading the image file from a series of disks. As Server Image prompts you for each disk, be careful to insert the disks sequentially. For more information, see “Restoring an Image File from a Zip Drive” on page 41.

The **Restoring the Image** dialog appears, tracking the following items:

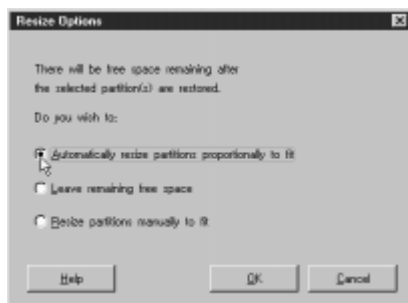
- Image filename
- Estimated megabytes to restore
- Total megabytes copied
- Entire process progress bar
- Information about current partition (volume, type, size MB, used MB, free MB)
- Sub-process progress bar
- Transfer rate for current partition
- Total megabytes copied for current partition
- Time elapsed
- Estimated time remaining

Upon completion, the following message appears: “Image was restored successfully. Would you like to view results?”

14. Click **Yes to view results, or **No** to return to the Server Image main screen.**

Resize Options

The following options are available when restoring partitions if the free space on the destination drive is greater than the space required by the partitions.



Resize Options

Automatically resize partitions proportionally to fit

Mark this option to allow Server Image to automatically expand the partitions in equal proportions to occupy the destination drive's remaining free space.

Leave remaining free space

Mark this option if you want to leave any remaining free space unused on the destination drive after the partitions are restored.

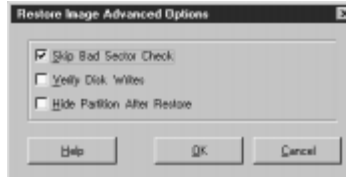
Resize partitions manually to fit

Mark this option to display the **Resize Partition** window where you can manually set the size of the partitions to fit in the destination drive's remaining free space.

NOTE: For more information on resizing partitions, see step 9 of the "Procedure" section on page 35.

Advanced Options

The **Restore Image Advanced Options** group box appears when you click **Advanced Options** at the **Ready To Restore Image File** screen. The following options are available from the **Restore Image Advanced Options** group box:



Restore Image Advanced Options

Skip Bad Sector Check

This is marked by default to save time in restoring the image file.

Although most drives do not have bad sectors, the potential for problems increases during the lifetime of the hard drive. If you have an older hard drive, it is wise to enable bad-sector checking by removing the mark from the **Skip Bad Sector Check** box.

Verify Disk Writes

Mark the **Verify Disk Writes** check box if you want to enable DOS disk write verification.

NOTE: Disk write verification is not critical to safely restore image files. Enabling disk write verification can slow the image restore process by as much as seven times.

Hide Partition After Restore

Most operating systems only allow one primary partition to be visible (bootable) at a time. If you are restoring an image of a primary partition, and you do not want to make that partition your visible (bootable) partition, mark the **Hide Partition After Restore** box.

Scenarios

Restoring an Image File from a Zip Drive

Sample System Configuration

One 2.1 GB hard drive containing:

- One active primary DOS partition (C:); 60 MB used and 140 MB unused.
- 1.9 GB unpartitioned free space.

One CD-ROM drive (D:).

One Zip drive (E:).

Objective

Restore a DOS and NetWare 4.11 partition from an image file (MYIMAGE.PQI) which spans several Zip disks. You wish to restore the DOS partition over the existing DOS partition on the hard drive and the NetWare partition into the unpartitioned free space on your hard drive, and resize it to 1.9 GB.

Procedure

1. Run Server Image.

NOTE: You must have the Zip drivers properly configured and loaded prior to running Server Image.

2. From the Server Image main screen, click **Restore Image**.
3. Insert the Zip disk you labeled as "MYIMAGE DISK #1" into your Zip drive.
4. In the Image File field, type **E:\MYIMAGE.PQI**, then click **Next**.
You may also click **Browse** to browse the directory tree for your Zip drive and the desired image file.
5. Click the **Select All** button, then click **Next**.
6. **Disk 1** should already be selected. Click **Next**.
7. Click **Delete Disk Partition(s)**.
8. In the **Delete Partition(s)** window, select the **DOS partition** on your hard drive. Click **Delete**.

9. Enter the partition label and click **OK**.
10. Click **Close** to exit the **Delete Partition(s)** window, then click **Next**.
11. When the **Resize Options** window appears, select **Resize partitions** manually to fit, then click **OK**.
12. In the **Resize Partitions** window, adjust the size of the NetWare partition to **1.9 GB** (to take up the rest of the hard drive). Click **Accept**.
13. Click **Finish**.
14. When Server Image prompts you to insert the next disk in the series, remove "MYIMAGE DISK #1" from the Zip drive and insert "MYIMAGE DISK #2".
15. After Server Image has completed the image restore, click **OK** to return to the Server Image main screen and exit the program.
16. Reboot your computer.
17. Load the server. Load INSTALL.NLM and add the additional space in the NetWare partition to the SYS: volume, or make it a new volume.

Result

After reboot, your hard drive has an active primary partition (C:) and a NetWare partition containing SYS(0).

Restoring an Image File from a CD-ROM Drive

Sample System Configuration

One 8 GB hard drive, unformatted (this will be a new server).

One CD-ROM drive (D:).

Objective

Restore the DOS and NetWare 5 partitions from CD-ROM to create a new server.

Procedure

1. Boot the machine with a boot diskette and run Server Image from the program CD. Ensure that the boot diskette contains the correct drivers for the CD-ROM drive.

To access your CD-ROM drive from Server Image, add the command in the CONFIG.SYS file to load your CD-ROM driver and add the command in the AUTOEXEC.BAT file to load the CD-ROM extensions, for example, MSCDEX.EXE.

2. From the Server Image main screen, click **Restore Image**.
3. Insert the CD-ROM you labeled as "NW5 #1" into your CD-ROM drive.
4. In the **Image File** field, type D:\NW5.PQI. Click **Next**.
You may also click **Browse** to browse the directory tree for your CD-ROM drive and the desired image file.
5. Click **Select All**, then click **Next**.
6. **Disk 1** should already be selected. Click **Next**.
7. Click **Resize Source Partition(s)**.
8. In the **Resize Partitions** window, click **Resize** and change the size of the NetWare partition to the maximum size. Click **OK**, then **Accept**.
9. Select the free space, then click **Next**.
10. Click **Finish**.
11. When Server Image prompts you to insert the next disk in the series, remove "NW5 #1" from the CD-ROM drive and insert "NW5 #2".

12. After Server Image has completed the image restore, it prompts you to select a primary partition to set active (bootable). Select the DOS partition.
13. Click **OK** to return to the Server Image main screen and exit the program.
14. Reboot your computer.
15. Using the information in Chapter 5, "Using Server Image to Deploy NetWare Servers," reconfigure the server to make it unique in the directory tree.

NOTE: Ensure you have the appropriate NetWare license diskette, and update the server's license.

Result

The restored partitions contain all the data from the original server, but the NetWare partition has been expanded to include most of the 8 GB hard drive.

Deploying NetWare Servers

This chapter contains the following information:

Using Server Image to Deploy NetWare Servers

Deploying a New Server

Hardware Configurations

Using Hide/Unhide for Backup Purposes

NOTE: Any discussion of deployment, including hard-disk imaging, assumes that the software, including the operating system, is being copied in accordance with the license agreements with the software manufacturers.

Using Server Image to Deploy NetWare Servers

When using Server Image to deploy servers, several issues need to be taken into account to restore a NetWare 4.x or 5.0 server. If you deploy the server within the same Directory tree as the original server, the following parameters need to be edited:

- Server Name in the AUTOEXEC.NCF file
- IPX Internal Network Number
- NIC Driver
- NIC I/O Address and Slot Number of the NIC
- Network Segment Number Bound to the NIC
- Server License

Server name

Because every server in a NetWare Directory tree must have a unique server name, you need to edit the AUTOEXEC.NCF file and specify a new name for the deployed server. You may do this from the server console with EDIT.NLM. At the server console, type the appropriate command for your version of NetWare:

- For NetWare 3.12, 3.2, or 4.x, type **LOAD EDIT** and press <Enter>.
- For NetWare 5.x, type **EDIT** and press <Enter>.

Type the name and location of the file to edit (typically this is SYS:SYSTEM\AUTOEXEC.NCF.)

Find the line that reads “file server name *server1*” where *server1* is the name of the deployed server, then replace the text with the new server’s name.

IPX Internal Network Number

You must also assign a unique IPX internal network number to every server within a Directory tree. Assign this number within the AUTOEXEC.NCF file. You can change this number from the server console with EDIT.NLM. At the server console, type the appropriate command for your version of NetWare:

- For NetWare 3.12, 3.2, or 4.x, type **LOAD EDIT** and press <Enter>.
- For NetWare 5.x, type **EDIT** and press <Enter>.

Type the name and location of the file to edit (typically this will be SYS:SYSTEM\AUTOEXEC.NCF.)

Find the line that reads “ipx internal net *abcd0123*” where *abcd0123* is the internal network number assigned to the original server when it was initially installed. Replace the original number with the new, unique IPX internal number.

NIC Driver

If you restore the image to a system with a network interface card (NIC), which is a different make or manufacture than initially installed in the source server, you must change the NIC driver for that card to reflect the correct network card and driver. If you used INETCFG to configure the NIC driver originally, update it by loading INETCFG.NLM at the server console and installing the correct driver. Although PowerQuest does not recommend restoring server images to systems with different hardware configurations, altering the NIC driver is a relatively simple task.

NIC I/O Address and Slot Number

You may also need to edit the I/O address or the slot number of the network board to reflect a different location if the server image is restored to a system with a different configuration. For example, if you create an image of a server with the NIC in slot 2, then restore the image to a server with the NIC in slot 3, the NIC slot number must be changed to reflect the correct location.

Network Segment Number

If you deploy a server to a new network, one with a different segment address, you must enter the correct IPX external network number to reflect the deployed server's location.

Server License

In all cases when you image and deploy a server to a new system, you need to install a new license that supports the correct number of connections required by the new system. You can change the server license by loading INSTALL.NLM at a NetWare 4.x console, or NWCONFIG at a NetWare 5.x console, selecting **License Options**, then inserting the new license diskette in the floppy drive.

Deploying a New Server

When you deploy a new server with an image from an existing system, you must remove Directory Services, then reinstall it on the deployed server to avoid conflicts with identical Organization and Organizational Units in existing servers, as well as to avoid deploying servers to different organizations with the same configuration and ADMIN password. You may remove Directory Services and reinstall from the server console with the INSTALL.NLM utility, under Directory options in NetWare. Keep in mind that to remove Directory Services, you must have the administrator password.

- For NetWare 4.x, type **LOAD INSTALL** and press <Enter>.
 - For NetWare 5.x, type **NWCONFIG** and press <Enter>.
1. At the server console, type the appropriate command for your version of NetWare.
 2. Select **Directory Options**.
 3. Select **Remove Directory Services from this server**.
 4. Read the warning and press <Enter>.
 5. Select **Yes** to confirm the removal of Directory Services.
 6. Once Directory Services have been removed, return to the main Install screen.
 7. Select **Directory Options**.
 8. Select **Install Directory Services to this server**, and follow the prompts to reconfigure Directory Services for the new server.

In addition, if you deploy an imaged server to an existing tree, ensure that the Time Server Type correctly reflects the organization's time synchronization configuration. If the imaged server was a "Single Reference" Time Server Type, and the deployed server participates in the same network, the Time Server Type must be changed to reflect a subordinate role. The Time Server Type may be changed by editing AUTOEXEC.NCF from the server console. See your NetWare administration documentation for more information about time server types.

Hardware Configurations

Because of operating system conflicts that can result from different hardware configurations, Server Image was not intended to copy or image a hard drive used in a server with different hardware configurations. While it is possible to do so, the conflicts that can arise from different hardware configurations may cause you to spend a considerable amount of time troubleshooting and eliminating hardware conflicts. If you find it necessary to create a server image from a specific machine and restore it to a system with a different configuration (for example, network interface card, IDE vs. SCSI drives or devices), the server may not boot correctly. You may use a DOS ASCII text editor to edit the STARTUP.NCF file (for example, if you need to change the disk drivers loaded from SCSI to IDE or vice versa) located in the C:\NWSERVER directory on the server's DOS partition. Alternately, you can use EDIT.NLM, INSTALL.NLM, or NWCONFIG.NLM from the server console once the server is loaded to make any changes necessary to AUTOEXEC.NCF (for example, to change a network board driver) to reflect the correct hardware configuration. Due to these potential conflicts, PowerQuest recommends imaging and restoring servers to similar hardware configurations.

If you intend to deploy a server to several target machines with different hardware configurations, you may want to consider loading both SCSI and IDE hard disk drivers into the STARTUP.NCF, and multiple NIC drivers into AUTOEXEC.NCF relating to the hardware configurations on the target machines. If you do this in preparation for deployment, you can simply remove the unnecessary drivers from each machine, rather than installing the correct ones after deployment.

Using Hide/Unhide for Disaster Recovery

Server Image includes a hide/unhide feature that gives you the option of storing an exact backup of a server partition on a second hard drive without causing volume name conflicts. To accomplish this, it is necessary to have a server hard drive with free, unpartitioned hard drive space that is the same size or larger than the SYS: volume.

1. Run Server Image and create an image of the partition containing the SYS: volume.
2. Restore that image to a second hard drive.

3. While in Server Image, select one of the partitions and hide it, using the **Hide/Unhide Partition** option from the **Tools** menu, and hide the newly made copy. This allows the system to have two copies of the SYS: volume, one hidden and inaccessible to the operating system, the other functioning normally.

In the event of a serious server ABEND or other circumstance that corrupts the SYS: volume, run Server Image from the DOS partition or a floppy diskette. Select the hidden partition, and use the **Hide/Unhide** option from the **Tools** menu.

Depending on your needs, the first SYS: volume may be deleted to free up space or hidden and kept for diagnostic or other purposes.

With a hidden copy of a server's SYS: volume in place on a local hard drive, down time from a severe server crash is virtually eliminated, and the server can be back up and provide services to clients within minutes. The information on the hidden SYS: volume is only as recent as the last time you imaged and restored the partition, so there is the chance that some current data will be lost.

Also, in the case when a SYS: or other partition is accidentally hidden, Server Image can be used to unhide the appropriate partition, so it may again be normally accessed. For example, if you maintain multiple copies of the DOS partition on the server hard drive, and alternate between them for demonstration purposes, when you use Server Image to set active the other partition, Server Image automatically hides all other primary partitions, including NetWare partitions, to avoid multiple visible primary partition corruption. If a SYS: volume partition is unintentionally hidden in this manner, the **Hide/Unhide** option may be used to unhide the partition.

C H A P T E R

6

Interactive vs. Batch Mode

This chapter contains the following information:

Command Line Switches

Script Files

Server Image may be run in one of two modes: interactive (the default) or batch mode. Interactive mode requires user input at discrete intervals, resulting in greater control and efficiency when working with one or two servers.

Alternately, batch mode is useful when loading image files onto a large number of servers. Batch mode automates the loading process, saving you time and effort by eliminating the need for repetitive user input.

Command Line Switches

Server Image uses a series of command line switches to run in batch mode. To use the these switches, type PQSI */switch*, where *switch* is one or more of the following:

Command Line Parameter	Description
/?	Displays all available command line switches, their syntax, and a short description.
/IMG=<imagefilename>	Designates an image file.
/CMD=<scriptfilename>	Designates a script text file; the script file contains arguments that are passed to the program.
/LOG=<logfile>	Designates a log file.
/ERR=<errorfilename>	Designates an error file.
/PWD=<password>	Designates a password that must be given to restore the partition(s). The password may either a number or a string.
/CAS	Causes all sectors within a partition to be saved and restored. This will include all information in a partition including the deleted files.
/CBS	Enables bad sector checking.
/CEC	Check for Extra Cylinder.
/DSK	Specify disk number for macro commands.
/IFC	Ignores file system checks. This allows a partition with a known file system error (for example, cross-linked files) to be stored in an image. Likewise, that same partition can be restored if this switch is used and if during the restore process the partition does not need to be resized.
/IPE	Disables partition table error checking. This switch allows drives with partition errors to be saved and restored.

Command Line Parameter	Description
/MFS=nnnnn	Designates the maximum file size used for creating multiple files to contain a PQI image. (nnnnn is the number of bytes in each file).
/NBS	Disables bad sector checking. By default, bad sector checking is disabled.
/NRB	No reboot after program exit.
/RAV	Causes each sector written to disk during the restore process to be read back and compared with the data just written as an extra security precaution. Using this parameter will significantly increase restore time.
/SCO	Syntax Check Only parameter; this switch causes the syntax of each command in the script file to be checked without executing the command.
/UEB	Forces the extended BIOS to be used for disk reads and writes.
/WFS	Wipe First Sector parameter; deletes the master boot record once all partitions are deleted with the script command DELETE ALL; only accessible using scripting.
/ZLB	Use ZLib compression.

Command Line Examples

Scenario 1: To specify SCRIPT.TXT as the script file, ERROR.TXT as the error file, and E:\IMAGES\DRIVE2.PQI as the image file:

```
PQSI /CMD=SCRIPT.TXT /ERR=ERROR.TXT /IMG=E:\IMAGES\DRIVE2.PQI
```

Scenario 2: To specify a syntax check for the script file SCRIPT.TXT:

```
PQSI /CMD=SCRIPT.TXT /SCO
```

Script Files

The script file designated in the command line contains arguments or instructions that are passed to the program, determining which operations are executed. The script file syntax is as follows:

Script Argument	Action
DELETE	Deletes the last partition selected.
DELETE ALL	Deletes all partitions on the drive.
DELETE EXTENDED	Deletes the extended partition; the extended partition can only be deleted if all the logical drives within it have already been deleted.
HIDE	Hides the last partition selected.
REBOOT	Reboots the computer; any commands following this command will not be executed.
RESIZE IMAGE { <i>proportional</i> <i>no</i> <number> <i>max</i> }	Resizes the image to the specified size when restored; <number> is indicated in MB.
RESTORE	Restores all selected images and resizes them, if specified.
SECTOR CHECK { <i>on</i> <i>off</i> }	Enables/Disables Bad Sector Checking for all restore operations following the command.
SELECT DRIVE {<number>}	Selects the drive with the specified number; the first drive is number 1.
SELECT FREESPACE { <i>first</i> <i>last</i> <i>next</i> <i>largest</i> }	Selects the specified free space.
SELECT IMAGE {<number> <i>all</i> }	Selects the specified image in the image file.
SELECT PARTITION {<driveletter> <volume label> <number> <i>first</i> <i>next</i> <i>all</i> }	Selects the specified partition(s).
SET ACTIVE	Sets active the last partition selected.
STORE { <i>with compression</i> { <i>off</i> <i>low</i> <i>high</i> }	Stores all selected partitions with the indicated compression level.
UNHIDE	Unhides the last partition selected.

Script File Examples

Scenario 1: To store all the partitions on drive 2 to the file, E:\IMAGES\DRIVE2.PQI:

```
PQSI /CMD=SCRIPT.TXT /IMG=E:\IMAGES\DRIVE2.PQI
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 2
SELECT PARTITION ALL
STORE
```

Scenario 2: To store partition 3 from drive 1, and partitions 1, 4, and 5 from drive 2 to the file, E:\IMAGES\DRIVES.PQI and have the image file split up into multiple files each 650 MB so each can be transferred to a CD-ROM:

```
PQSI /CMD=SCRIPT.TXT /IMG=E:\IMAGES\DRIVES.PQI /MFS=650000000
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 1
SELECT PARTITION 3
STORE
SELECT DRIVE 2
SELECT PARTITION 1
SELECT PARTITION 4
SELECT PARTITION 5
STORE
```

Scenario 3: To restore all the images in the file, E:\IMAGES\DRIVES.PQI, to the first free space on drive 2:

```
PQSI /CMD=SCRIPT.TXT /IMG=E:\IMAGES\DRIVES.PQI
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 2
SELECT FREESPACE FIRST
SELECT IMAGE ALL
RESTORE
```

Scenario 4: To restore the first two images in the file, E:\IMAGES\DRIVES.PQI, to the largest free space on drive 1, and resize them both proportionally:

```
PQSI /CMD=SCRIPT.TXT /IMG=E:\IMAGES\DRIVES.PQI
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 1
SELECT FREESPACE LARGEST
SELECT IMAGE 1
SELECT IMAGE 2
RESIZE IMAGE PROPORTIONAL
RESTORE
```

Scenario 5: To restore the first two images in the file, E:\IMAGES\DRIVES.PQI, to the last free space on drive 1, and resize them to 500 MB each (The image was encrypted using the password 12345678):

```
PQSI /CMD=SCRIPT.TXT /IMG=E:\IMAGES\DRIVES.PQI /PWD=12345678
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 1
SELECT FREESPACE LAST
SELECT IMAGE 1
RESIZE IMAGE 500
SELECT IMAGE 2
RESIZE IMAGE 500
RESTORE
```

Scenario 6: To delete all existing partitions on drive 2 and then restore all the images in file, E:\IMAGES\DRIVES.PQI, to the free space (The image was encrypted using the password HELLO):

```
PQSI /CMD=SCRIPT.TXT /IMG=E:\IMAGES\DRIVES.PQI /PWD=HELLO
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 2
DELETE ALL
SELECT FREESPACE FIRST
SELECT IMAGE ALL
RESTORE
```

Scenario 7: To restore the first four images in the file, *drive:*\IMAGES\DRIVES.PQI, to the last free space on drive 1, and then resize the first image to 500 MB, keep the second the same size, and resize the third and fourth images to proportionally take up the remaining free space:

```
PQSI /CMD=SCRIPT.TXT /IMG=drive:\IMAGES\DRIVES.PQI
```

SCRIPT.TXT file contents:

```
SELECT DRIVE 1
SELECT FREESPACE LAST
SELECT IMAGE 1
RESIZE IMAGE 500
SELECT IMAGE 2
RESIZE IMAGE NO
SELECT IMAGE 3
SELECT IMAGE 4
RESIZE IMAGE PROPORTIONAL
RESTORE
```

NOTE: For further scenarios, visit our home page at <http://www.powerquest.com>.

A P P E N D I X

A

Additional Resource Information

This appendix contains the following information:

Hard Drive Manufacturer Contact Information

Using FDISK and FORMAT to Create and Format Partitions

Using Server Image with SCSI Hard Drives

Assigning a CD-ROM Drive Letter

Hard Drive Manufacturer Contact Information

To find the jumper settings for hard drives, consult your hard drive installation guide, or contact your hard drive manufacturer directly. This section contains the World Wide Web site addresses and phone numbers for the most common hard drive manufacturers. In most cases, the hard drive manufacturer's web site contains the information you need to install the hard drive correctly.

Another valuable resource is the web page, <http://blue-planet.com/tech/index.html>. In addition to listing the most common hard drive manufacturers, this site provides the jumper settings for every hard drive ever made.

Additional jumper information is available from OnTrack at <http://www.ontrack.com>.

Contact Information

NOTE: The following contact information was correct at the time this manual was printed. Information is subject to change.

Fujitsu

- URL: http://www.fcpa.com/support/su_support_frame.html
- Tech Support Phone: 800-626-4686
- Fax Back Support: 408-428-0456

Maxtor

- URL: <http://www.maxtor.com/satisfaction/contact.html>
- Tech Support Phone: 800-2-Maxtor or 800-262-9867
- Tech Support Fax: 303-260-2260 or 408-922-2050
- E-mail: Technical_Assistance@Maxtor.com

Quantum

- URL: <http://support.quantum.com/>
- Tech Support Phone: 800-826-8022
- Fax Back Support: 800-434-7532

Samsung Electronics America

- URL: <http://samsungelectronics.com/support/faqs/index.html>
- Tech Support Phone: 800-726-7864
- Fax Back Support: 800-229-2239

Seagate/Conner

- URL: <http://www.seagate.com/support/disc/specs/qickspec.shtml>
- Tech Support Phone: 408-456-4496
- Tech Support Fax: 405-936-1685
- Fax Back Support: 405-936-1600
- Automated Support: 800-732-4283

Western Digital

- URL: <http://www.wdc.com/support>
- Tech Support Phone: 800-275-4932
- Fax Back Support: 714-932-4300

Using FDISK and FORMAT to Create and Format Partitions

NOTE: Although FDISK and FORMAT do not offer the functionality and flexibility of PowerQuest's ServerMagic, these free utilities are capable of creating new FAT partitions or deleting existing partitions.

This section explains how to create and delete partitions for the following situations:

Scenario 1:

If you copied a single FAT partition (C: drive) from your source hard drive to a destination hard drive larger than 2.1 GB, you now have unallocated disk space and need to create a partition(s). To create and format a partition(s) using FDISK and FORMAT:

NOTE: Using FDISK to create partitions from unallocated disk space is simple and does NOT destroy any existing data on the hard drive. FDISK, however, does NOT allow you to change partition sizes without destroying data.

1. At a DOS or MS-DOS prompt, type **FDISK** and press <Enter>.
2. Select **1** to Create DOS partition or Logical DOS Drive and press <Enter>.
3. Select **2** to Create Extended DOS partition and press <Enter>.
4. Press <Enter> again to create the Extended DOS partition.
5. Press <Esc>.
6. Press <Enter> to create the Logical DOS Drive within the Extended partition.
7. If your hard drive is larger than 4 GB, you can create a second Logical DOS partition with the remaining disk space. To do so press <Enter>.
8. Press <Esc> twice to return to a DOS or MS-DOS prompt.

NOTE: To format your new partitions, type **FORMAT *drive*:** at a DOS or MS-DOS prompt where *drive* is the drive letter of the new partition. You now have additional partitions on your destination hard drive (example D:, E:).

Scenario 2:

If you want to leave your source drive in as a secondary or Slave drive after the copy, you need to delete and recreate partitions so that drive letters do not conflict. To delete and recreate partitions on your source hard drive after the copy process is finished, follow these steps:

NOTE: This process will delete the data on this hard drive; however, you have a complete copy on your destination drive.

1. If you have not already done so, change the jumper settings on the original source drive to reflect a secondary or Slave setting in a two drive system. Then switch the jumper settings on the destination drive to reflect a primary or Master setting in a two drive system.

2. At a DOS or MS-DOS prompt, type **FDISK** and press <Enter>.

NOTE: If you are asked whether you wish to enable large disk support, click **YES** and press <Enter> UNLESS you plan on using other operating systems on your PC, including some versions of Windows 95 and Windows NT, as well as earlier versions of Windows and MS-DOS.

3. Select **5** to Change Current Fixed Disk Drive and press <Enter>.
4. At the Change Current Disk Drive Screen, choose **2** to change to your second disk drive and press <Enter>.
5. Next select **3** to Delete partition or Logical DOS drive and press <Enter>.
6. Choose to delete your logical drive(s) first and then your extended partition and then finally your primary partition(s). Or if you only have one partition on your source hard drive choose to delete the single primary partition.
7. Select **1** to Create DOS partition or Logical DOS Drive and press <Enter>.
8. Next select **2** to Create Extended DOS partition and press <Enter>.
9. Press <Enter> again to create the Extended DOS partition.
10. Press <Esc>.
11. Press <Enter> to create the Logical DOS Drive within the Extended partition.
12. If your hard drive is larger than 4 GB, you can create a second Logical DOS partition with the remaining disk space. To do so press <Enter>.

13. Press the <Esc> key twice to return to a DOS or MS-DOS prompt.
14. To format your new partitions, type **FORMAT *drive*:** at a DOS or MS-DOS prompt where *drive* is the drive letter of the new partition.

You now have a new empty partition(s) in which to store your applications and data.

Using Server Image with SCSI Hard Drives

To use Server Image on a SCSI hard drive, you must have a SCSI controller card that supports software Interrupt 13. Most SCSI controller cards let the user enable software Interrupt 13 support in the BIOS through the card. If your SCSI controller card does not allow you to set it to use software Interrupt 13, Server Image will not work on drives attached to your SCSI adapter. Contact the manufacturer of the SCSI adapter to determine if your adapter can support software Interrupt 13. As a general rule, if FDISK can be used to partition the drive, you can use Server Image.

Assigning a CD-ROM Drive Letter

If your computer has a CD-ROM drive or any form of removable media, you should be aware of potential problems with the way drive letters are assigned to these devices.

Server Image does not make drive letter assignments; this is a function of the operating system. The operating system assigns drive letters in the following order: The first recognized primary partition on each hard drive will receive a letter, followed by all logical partitions on each hard drive. Next, the CD-ROM drive and any other form of removable media will be assigned a letter.

Because the CD-ROM is one of the last drives to receive a letter, any partitions that you create or delete on any of your hard drives will affect the drive letter assignment of your CD-ROM drive. This change in drive letter assignments is usually performed by the operating system automatically. Occasionally, however, the operating system will fail to assign a new drive letter to the CD-ROM drive. If this should occur, please follow the steps listed below.

If you are using DOS/Windows 3.11 or are loading your CD-ROM drivers under DOS with Windows 95:

1. At a DOS prompt, type **EDIT C:\CONFIG.SYS**.

This starts the DOS editor program and opens your CONFIG.SYS file.

2. Change **LASTDRIVE=drive** (in which *drive* is any letter of the alphabet) to **Z**.

This allows the OS to assign all drive letters through **Z**.

3. Click **File > Exit**.

4. Click **Yes** to save the file.

5. You should now be back to a C:\ prompt. Type **EDIT C:\AUTOEXEC.BAT**.

The DOS editor program starts and opens your AUTOEXEC.BAT file.

6. Look for a line that includes the word **MSCDEX**. The **/L:drive** parameter (in which *drive* is the drive letter that was assigned to your CD-ROM before you made changes with Server Image) may appear at the end of this line. Change this letter to **U**.

Because the OS assigns all other available drive letters before assigning **Z**;, this ensures that partition changes you make in the future will not invalidate your CD-ROM drive letter.

For more information, type **HELP MSCDEX** at a DOS prompt.

NOTE: If your computer is on a network when you log in to the network, the letter **Z** and other letters at the end of the alphabet may be assigned to network search drives. In this case, assign your CD-ROM a letter just before the first letter used by the network search drives.

7. Select **File**, then **Exit**. When you are asked whether you want to save the file, click **Yes**.
8. When you see the DOS prompt (C:\), reboot your machine.

A P P E N D I X

B

Troubleshooting

This appendix gives solutions to problems that you may encounter while using PowerQuest's Server Image. Included are the following:

Frequently Asked Questions

Freeing Memory to Run Server Image

Resolving Partition Table Errors

Partition Tables and Viruses

Frequently Asked Questions

PowerQuest maintains the latest Frequently Asked Questions at <http://support.powerquest.com/FAQS.html>

Freeing Memory to Run Server Image

The Server Image executable running under DOS requires a minimum of 400KB of memory in the first 640KB of the computer's address space (conventional memory). If you try to run Server Image from DOS, and find you do not have enough free conventional memory, you can free enough additional memory in a number of ways.

Running MEMMAKER

MEMMAKER is a program that automatically configures your computer to save conventional memory (while still loading all of the device drivers and other programs you usually load when booting DOS). MEMMAKER frees conventional memory by moving as many programs as possible out of conventional memory into high memory. Run MEMMAKER by typing MEMMAKER at a DOS prompt. Follow the on-screen instructions.

NOTE: MEMMAKER is only available with DOS versions prior to DOS 6.0.

Using the F8 Key to Keep Programs From Loading

If running MEMMAKER does not free enough conventional memory, you can free more by pressing <F8> right after booting your computer (while DOS is booting). If you press <F8>, when DOS reads the commands from the CONFIG.SYS and AUTOEXEC.BAT files on your hard drive, DOS asks you if you want it to execute each command. When you see commands that load device drivers or TSR programs that you do not need to run Server Image, answer **N** (no) to tell DOS not to execute that command (not load that software into memory). This conserves conventional memory.

Creating an Operating System Boot Diskette

If running MEMMAKER and using <F8> does not free enough conventional memory, you can create a boot diskette that allows you to boot using a very minimal amount of conventional memory.

To create a boot diskette for any version of DOS:

1. Place in your diskette drive (A:) any diskette that does not contain information you want to keep.
2. Go to a DOS prompt, type **FORMAT *drive*: /S** (where *drive* is the drive letter of the diskette drive).
3. Press <Enter>.

After the diskette is formatted and the operating system files are transferred, you can boot the computer from the diskette. If you restart your computer with the diskette in the diskette drive, your computer boots using a minimal amount of conventional memory. After you boot from the diskette, you can run Server Image from either the diskette or your hard drive.

Creating a CONFIG.SYS File on the Boot Diskette

If making an ordinary boot diskette doesn't free enough conventional memory, you can create a customized boot diskette that frees even more conventional memory. (With the customized diskette, you free more conventional memory by loading some of the DOS operating system into high memory.) To customize the diskette, you must create a CONFIG.SYS in the root directory.

To create a CONFIG.SYS in the root directory:

1. Go to a DOS prompt.
2. Type ***drive*:** (where *drive* is the drive letter of the diskette drive) and press <Enter>.

NOTE: Verify that you have changed to the diskette drive (you see the *drive*:\> prompt).

3. Type **EDIT CONFIG.SYS** and press <Enter>.

NOTE: This starts the DOS editor (you will see a blank screen).

4. In the editor, type the following:

```
DEVICE=C:\DOS\HIMEM.SYS
```

```
DEVICE=EMM386.EXE
```

```
DOS=HIGH,UMB
```

NOTE: All lines must be entered in the order shown. Windows users: Substitute WINDOWS for DOS.

5. Click **File > Save** to save the file.
6. Click **File > Exit** to exit the editor.

You can now reboot your computer from the customized boot diskette. When DOS loads, much of it is loaded into high memory, saving a maximum amount of conventional memory.

Deleting Operating System Compression Files

If you use DOS 6.22 and your system doesn't have any compressed drives (for example, DriveSpace, DoubleSpace, or Stacker), you can delete the operating system compression files DRVSPACE.BIN or DBLSPACE.BIN from any boot diskette you create. This frees more conventional memory, because DOS 6.22 loads the contents of these files into memory, regardless of what's in the CONFIG.SYS or AUTOEXEC.BAT. To delete these hidden system files:

1. From the DOS prompt, type ***drive*:** (where *drive* is the drive letter of the diskette drive).
2. Type **ATTRIB -R -H -S *.BIN**.
3. Type **DEL *.BIN**.

Resolving Partition Table Errors

To resolve partition table errors, you must create new, error-free partition tables.

NOTE: In some cases, PowerQuest technical support can help you fix partition table errors without data loss. Check with them first before proceeding to the following steps.

To create new partition tables:

1. Make sure you have no viruses.

NOTE: See "Partition Tables and Viruses" (page 70).

2. Back up the data on the affected partitions.

3. Delete the partitions.

NOTE: You may need to use the FDISK program from a recent DOS version, because earlier versions of DOS may refuse to delete HPFS or hidden partitions.

If using OS/2, the OS/2 FDISK program may recognize the partition's corruption and refuse to modify it. In this case, use the FDISK program from a recent DOS version.

4. Recreate the partitions.
5. Restore the contents of the partitions.

Partition Tables and Viruses

If partition changes made under one operating system are not reflected under the other, and vice versa, it is possible that a master boot record (MBR) virus is present.

Use a virus check utility that can detect the latest viruses. If a virus is found, data loss is likely. To eliminate a virus:

1. Before removing the virus, run ScanDisk or CHKDSK under each of the operating systems to evaluate the integrity of the partition.
2. Back up the files from any partition that passes the Check operation.
3. After backing up the files from all operating systems, remove the virus.
4. Run ScanDisk or CHKDSK under each of the operating systems again.
5. Delete and recreate any partitions that fail the check.
6. Reinstall the operating system(s).
7. Restore the backup files as necessary.

A P P E N D I X

C

PowerQuest Technical Support

This appendix contains the following information:

Before You Contact Technical Support

PowerQuest Problem Report

Contacting PowerQuest Technical Support

PowerQuest Newsletter and Internet Address

Before You Contact Technical Support

PowerQuest is committed to providing you with comprehensive technical support. However, before calling our technical support department, try to resolve your problem by using this guide, the online Help system, or check PowerQuest's Web site for Frequently Asked Questions at *<http://support.powerquest.com/FAQS.html>*, or for international customers, see *<http://www.powerquest.com/intnl/index.html>*. Also, check the README.TXT file for information that has changed since this guide was printed.

PowerQuest Problem Report

If you cannot find the solutions you need in this guide, please have the following information ready or send it along when you contact technical support:

Your Company Name _____

Your Name _____

Your Phone Number _____

Your Fax Number _____

ServerMagic Serial Number _____

Computer Manufacturer _____

Computer Model and Model Number _____

Date of Computer Manufacture _____

Processor Type (386, 486, Pentium) _____

Amount of Memory (RAM) _____

Operating System(s) / Version Number (NetWare 5, etc.) _____

File System(s) (FAT, FAT32, HPFS, etc.) _____

Other Hardware. Include bus type (ISA, EISA, MCA, PCI, VESA), hard drive model, and external drives.

Memory Resident Software. Include memory managers and list their version numbers (for example, OnTrack's Disk Manager Version 6.0 or EZ-Drive Version 7.0).

Contacting PowerQuest Technical Support

If you cannot get the help you need from this guide, you can contact our technical support department in any of the ways listed below. You must be a registered Server Image user to receive the following types of technical support. PowerQuest offers free support for 45 days from the date of your first call to PowerQuest's technical support.

Fax

Location	Number
USA	(801) 437-4218
Europe	(+31) 20 582 9260

Fax the information listed on the pages above and a description of your problem to the technical support fax number. This service is available in the U.S., Canada, and Europe 24 hours a day, 7 days a week. We try to respond to all fax requests within 24 hours.

Faxback

Location	Number
USA	(801) 437-7921
USA Toll Free	(800) 720-0391

Postal Service Mail

USA	Europe
PowerQuest Corporation	PowerQuest
PO Box 1911	Orlyplein 85
Orem, Utah 84059-1911	1043 DS
	Amsterdam
	The Netherlands

Please include the information from the PowerQuest Problem report with a description of your problem. Be sure to also include a return address, a daytime phone number, or other relevant contact information.

Corporate Web Site

<http://www.powerquest.com>

E-mail

Language	Location	E-mail
English	USA	support@powerquest.com
Italian	USA	italian@powerquest.com
Portuguese	USA	latina@powerquest.com
Spanish	USA	spanish@powerquest.com
Dutch	Netherlands	eurots@powerquest.com
English	Netherlands	eurots@powerquest.com
English	UK	eurots@powerquest.com
French	France	france@powerquest.com
German	Germany	germany@powerquest.com

Please include the information from the PowerQuest Problem Report with a description of your problem in your e-mail message.

Telephone

Language	Location	Number
Dutch	Netherlands	(+31) 20 581 3906
English	Netherlands	(+31) 20 581 3907
English	UK	(+44) 0171 341 55 17
English	USA	(801) 226-6834
French	France	(+33) 1 69 32 49 30
German	Germany	(+49) 069 66 568 516
Italian	Italy	(+39) 02 45 28 1312
Portuguese	USA	(801) 226-6834
Spanish	Spain	(+34) 91 622 3146
Spanish	USA	(801) 226-6834

Our USA call center is open Monday through Friday, 7 a.m. to 6 p.m., MST/MDT. Our European call centers are open Monday through Friday, 9:00 to 18:00 CET. Please have the information from the PowerQuest Problem report ready for the technical support technician.

PowerQuest Newsletter and Internet Address

PowerQuest has a monthly electronic newsletter that is dedicated to official announcements regarding PowerQuest products. It also contains tips and techniques for getting the most out of your PowerQuest products. Signing up on the list will give you all the information you need regarding product tips, bugs, and patches. Just go to the PowerQuest home page (<http://www.powerquest.com>), enter your email address in the space provided, then click **Subscribe**.

You will be e-mailed a response verifying your subscription.

Glossary

ATA

A standard used by hard drives to communicate with the controller ports or cards that allow the hard drive to interface with the computer. Before ATA, there were numerous incompatible methods for interfacing hard drives to computers. ATA simplifies this process, thus reducing the cost of developing and purchasing related hardware. ATA is the proper term for Integrated Drive Electronics (IDE).

ATA-2

ATA-2 is the common name for a new, enhanced IDE standard. This standard is still evolving and has not yet been submitted for approval as an official standard.

Batch Mode

Switches in a normally interactive program that prepare it to receive non-interactive command input.

BIOS (Basic Input/Output System)

The BIOS is the program code stored in a PC-compatible ROM to boot the computer and provide basic services such as low-level hard drive access.

Cloning

Copying a hard drive to an image file or destination disk to create an exact duplicate.

Destination

The destination hard drive is the drive that is copied to during a restore operation.

Disk

A hardware device to store data. A disk contains a Master Boot Record and partitions.

EIDE (Enhanced Integrated Drive Electronics)

A marketing program that promotes certain features of ATA-2.

Extended Partition

One of the four primary partitions on a hard drive can be an extended partition. Extended partitions do not directly hold data; rather, you can create an unlimited number of logical partitions within the extended partition to store data. An extended partition cannot be the active partition.

FAT File Allocation Table

File system used by DOS, Windows 95, NT and sometimes OS/2 to store and retrieve files and directories.

FAT32

FAT32 is the file system used by updated versions of Windows 95 (version 4.00.950B or above) and Windows 98. FAT32 is an enhancement of the FAT file system and is based on 32-bit file allocation table entries, rather than on the 16-bit entries the FAT file system uses. As a result, FAT32 supports much larger volumes (up to 2 terabytes).

GB (Gigabyte)

1,073,741,824 bytes.

IDE

See ATA.

Image

An image is a snapshot of a drive's partition(s) that can be used to back up a system, install a new hard drive, or configure a new system.

Jumper

Metal prongs and a circuit completion cap on the outside of a hard drive. You can remove, reposition, and then replace the cap to create various jumper settings such as Master and Slave.

HPFS

High Performance File System an alternative to a FAT file system which is used by OS/2.

Interactive Mode

An operation mode where the program's responses alternate with user commands, each being dependent upon the other.

LBA (Logical Block Addressing)

1) In EIDE, a means of specifying sector addresses by replacing CHS values with a single linear 28-bit number. 2) Generically, a one-dimensional address of a hard-disk sector, contrast with *CHS*.

Linux

Linux Ext2 file system was developed for the Linux operating system (a free-ware version of the UNIX operating system). Linux Ext2 file system supports a maximum volume size of 4 terabytes.

Logical Drive

A contiguous area inside an extended partition that can be used by the operating system to store and retrieve files.

Master

The first hard drive on an IDE hard drive controller.

MB (Megabyte)

1,048,576 bytes.

NetBIOS

A high level Network programming interface which is supported by lower level Network protocols such as IP/SP and TCP/IP.

NetWare

The Novell NetWare network operating system uses the NetWare File System, which was developed specifically for use by NetWare servers.

NTFS New Technology File System.

An alternative to FAT and HPFS file systems used by WinNT.

Partition

An uninterrupted area on a disk, defined in the Master Boot Record. Every partition contains a specific file system such as FAT, FAT32, HPFS, or NTFS.

Primary Partition

A partition referenced in the Master Boot Record partition table. Four primary partitions can exist on a hard drive. One of these may be an extended partition. Only one primary partition on a drive may be active at time. Data and applications are often placed on a logical partition inside an extended partition. This enables the data to be accessed by all primary partitions.

Restore

Downloading an image file to a destination drive.

Slave

The second hard drive on an IDE hard drive controller.

Script File

A series of instructions, usually in text file format, written to be passed to a program running in batch mode.

Source

The Source hard drive is the drive from which the image is made.

Volume

This User Guide uses the term volume interchangeably with partition.

Index

A

- Advanced Options
 - Create Image 25
 - Restore Image 40

B

- batch mode 2, 52
- Bootable Diskette, Creating 67

C

- CD-R
 - Creating Image Files On 28
 - Restoring Image Files From 43
- Check for File System Errors 25
- command line switches 52–53
- Compressing Image Files 22
- Compression Files, Deleting OS 68
- Compression Level 22
- CONFIG.SYS, Creating on the Boot Diskette 67
- Contact Information
 - External Drive Manufacturers 6
 - Hard Drive Manufacturers 58
 - PowerQuest 71
- contact information
 - PowerQuest technical support 74
- Conventional Memory
 - Required 3
- Creating Image Files 17
 - Advanced Options 25
 - Scenarios 27

D

- Disable SmartSector Copying 26
- Drive Letter
 - Assignment by Operating System 62
 - CD-ROM, Making the OS Assign 62

E

- External Drives
 - Manufacturer's Contact Information 6

F

- F8 Key, Using to Keep Programs from Loading 66
- FDISK 60
- FORMAT 60
- Frequently Asked Questions 66

G

- Glossary 77

H

- Hide Partition After Restore 40

I

- Image Files
 - Creating 17
 - Restoring 31
 - Spanning 24
- Installing
 - Server Image 6
- internet address, PowerQuest 76

M

- MEMMAKER 66
- Memory, Conventional
 - Required 3

N

- NetWare client, using parallel port devices with 8
- newsletter
 - sign up 76

O

- Operating System
 - Boot Diskette 67
 - Deleting Compression Files 68
 - Supported 6

P

parallel port devices, using with a NetWare client
8

Partition Table

Resolving Errors 69

Viruses 70

Partitions

Hiding After Restore 40

Using FDISK and FORMAT to Create and
Format 60

Password Protect Image File 26

PowerQuest 74

Contact Information 72

internet address 76

newsletter 76

problem report 73

technical support 74

Prerequisites to Using Server Image 6

problem report, submitting to PowerQuest 73

R

Removable Storage Devices

Manufacturer's Contact Information 6

Resize Options 39

Resizing Partitions 35

Restoring Image Files 31

Advanced Options 40

Resize Options 39

Resizing Partitions 35

Scenarios 41

S

Scenarios

Creating Image Files 27

Restoring Image Files 41

SCSI Hard Drives, Using Server Image with 62

Skip Bad Sector Check 40

SmartSector Copying, Disabling 26

Spanning 24

Split Image File Into Multiple Files 26

System Requirements 3

T

Technical Support

E-mail 75

Fax 74

Faxback 74

Mail 74

PowerQuest 74

problem report 73

Telephone 75

V

Viruses 70

Z

Zip Drives

Restoring Image Files From 41

Zip drives

creating an image file on 27