Contents

Figures, Tables, and Listings xiii

Preface About This Book xvii

Format of a Typical Chapter xviii
Conventions Used in This Book xviii
Special Fonts xviii
Types of Notes xix
Assembly-Language Information xix
Development Environment xx

Chapter 1 Introduction to File Management 1-3

About Files 1-4
File Forks 1-4
File Size 1-6
File Access Characteristics 1-8
The Hierarchical File System 1-9
Identifying Files and Directories 1-12
Using Files 1-12
Testing for File Management Routines 1-14
Defining a Document Record 1-15
Creating a New File 1-16
Opening a File 1-18
Reading File Data 1-22
Writing File Data 1-23
Saving a File 1-26
Reverting to a Saved File 1-30
Closing a File 1-32
Opening Files at Application Startup Time 1-34
Using a Preferences File 1-36
Adjusting the File Menu 1-37
File Management Reference 1-38
Data Structures 1-39
File System Specification Record 1-39
Standard File Reply Records 1-39
Application Files Records 1-41
File Specification Routines 1-42
File Access Routines 1-43
Reading, Writing, and Closing Files 1-44
Manipulating the File Mark 1-46
Manipulating the End-of-File 1-48

File and Directory Manipulation Routines 1-49
Opening, Creating, and Deleting Files 1-49
Exchanging the Data in Two Files 1-53
Creating File System Specifications 1-54
Volume Access Routines 1-55
Updating Volumes 1-55
Obtaining Volume Information 1-56
Application Launch File Routines 1-57
Summary of File Management 1-61
Pascal Summary 1-61
Constants 1-61
Data Types 1-62
File Specification Routines 1-63
File Access Routines 1-63
File and Directory Manipulation Routines 1-63
Volume Access Routines 1-64
Application Launch File Routines 1-64
C Summary 1-64
Constants 1-64
Data Types 1-65
File Specification Routines 1-66
File Access Routines 1-67
File and Directory Manipulation Routines 1-67
Volume Access Routines 1-68
Application Launch File Routines 1-68
Assembly-Language Summary 1-68
Global Variables 1-68
Result Codes 1-69

Chapter 2 File Manager 2-5

About the File Manager 2-5
File Manipulation 2-7
Directory Manipulation 2-10
Volume Manipulation 2-11
Volume Searching 2-13
Shared Environments 2-14
Shared File Access Permissions 2-15
Directory Access Privileges 2-18
Remote Volume Mounting 2-20
Privilege Information in Foreign File Systems 2-20
File ID Reference Routines 2-23
Identifying Files, Directories, and Volumes 2-23
File System Specifications 2-24
File IDs 2-24
Directory IDs 2-25

Volume Reference Numbers 2-26
Working Directory Reference Numbers 2-26
Names and Pathnames 2-27
HFS Specifications 2-28
Search Paths 2-32
Using the File Manager 2-33
Determining the Features of the File Manager 2-33
Creating File System Specification Records 2-35
Manipulating the Default Volume and Directory 2-36
Deleting Files and File Forks 2-38
Searching a Volume 2-39
Constructing Full Pathnames 2-45
Determining the Amount of Free Space on a Volume 2-47
Sharing Volumes and Directories 2-49
Locking and Unlocking File Ranges 2-51
Data Organization on Volumes 2-53
Disk and Volume Organization 2-55
Boot Blocks 2-58
Master Directory Blocks 2-60
Volume Bitmaps 2-63
B*-Trees 2-64
Nodes 2-65
Node Records 2-67
Header Nodes 2-68
Map Nodes 2-70
Index Nodes 2-70
Leaf Nodes 2-71
Catalog Files 2-71
Catalog File Keys 2-72
Catalog File Data Records 2-73
Extents Overflow Files 2-75
Data Organization in Memory 2-77
The File I/O Queue 2-78
Volume Control Blocks 2-78
File Control Blocks 2-82
B*-Tree Control Blocks 2-84
The Drive Queue 2-85
File Manager Reference 2-87
Data Structures 2-87
File System Specification Record 2-87
Basic File Manager Parameter Block 2-88
HFS Parameter Block 2-92
Catalog Information Parameter Blocks 2-101
Catalog Position Records 2-105
Catalog Move Parameter Blocks 2-106
Working Directory Parameter Blocks 2-107
File Control Block Parameter Blocks 2-108

Volume Attributes Buffer 2-110
Volume Mounting Information Records 2-111
High-Level File Access Routines 2-113
Reading, Writing, and Closing Files 2-113
Manipulating the File Mark 2-116
Manipulating the End-of-File 2-118
Allocating File Blocks 2-119
Low-Level File Access Routines 2-121
Reading, Writing, and Closing Files 2-122
Manipulating the File Mark 2-126
Manipulating the End-of-File 2-127
Allocating File Blocks 2-129
Updating Files 2-132
High-Level Volume Access Routines 2-133
Unmounting Volumes 2-133
Updating Volumes 2-134
Manipulating the Default Volume 2-135
Obtaining Volume Information 2-138
Low-Level Volume Access Routines 2-139
Mounting and Unmounting Volumes 2-140
Updating Volumes 2-143
Obtaining Volume Information 2-145
Manipulating the Default Volume 2-151
File System Specification Routines 2-155
Opening Files 2-155
Creating and Deleting Files and Directories 2-158
Accessing Information About Files and Directories 2-161
Moving Files or Directories 2-165
Exchanging the Data in Two Files 2-166
Creating File System Specifications 2-167
High-Level HFS Routines 2-170
Opening Files 2-170
Creating and Deleting Files and Directories 2-173
Accessing Information About Files and Directories 2-176
Moving Files or Directories 2-180
Maintaining Working Directories 2-181
Low-Level HFS Routines 2-183
Opening Files 2-184
Creating and Deleting Files and Directories 2-188
Accessing Information About Files and Directories 2-191
Moving Files or Directories 2-201
Maintaining Working Directories 2-203
Searching a Catalog 2-206
Exchanging the Data in Two Files 2-208
Shared Environment Routines 2-210
Opening Files While Denying Access 2-210
Locking and Unlocking File Ranges 2-213

Manipulating Share Points 2-216
Controlling Directory Access 2-219
Mounting Volumes 2-221
Controlling Login Access 2-224
Copying and Moving Files 2-228
File ID Routines 2-231
Resolving File ID References 2-231
Creating and Deleting File ID References 2-232
Foreign File System Routines 2-234
Utility Routines 2-237
Obtaining Queue Headers 2-237
Adding a Drive 2-238
Obtaining File Control Block Information 2-239
Application-Defined Routines 2-240
Completion Routines 2-240
Summary of the File Manager 2-243
Pascal Summary 2-243
Constants 2-243
Data Types 2-245
Internal Data Types 2-254
High-Level File Access Routines 2-256
Low-Level File Access Routines 2-257
High-Level Volume Access Routines 2-258
Low-Level Volume Access Routines 2-258
File System Specification Routines 2-259
High-Level HFS Routines 2-260
Low-Level HFS Routines 2-262
Shared Environment Routines 2-264
File ID Routines 2-266
Foreign File System Routines 2-266
Utility Routines 2-267
Application-Defined Routine 2-267
C Summary 2-267
Constants 2-267
Data Types 2-270
Internal Data Types 2-280
High-Level File Access Routines 2-283
Low-Level File Access Routines 2-283
High-Level Volume Access Routines 2-284
Low-Level Volume Access Routines 2-285
File System Specification Routines 2-286
High-Level HFS Routines 2-287
Low-Level HFS Routines 2-288
Shared Environment Routines 2-290
File ID Routines 2-292
Foreign File System Routines 2-293
Utility Routines 2-293
Application-Defined Routine 2-294

Assembly-Language Summary 2-294
Constants 2-294
Data Structures 2-295
Trap Macros 2-302
Global Variables 2-305
Result Codes 2-305

Chapter 3 Standard File Package 3-3

About the Standard File Package 3-3
Standard User Interfaces 3-4
Opening Files 3-4
Saving Files 3-5
Keyboard Equivalents 3-7
Customized User Interfaces 3-8
Saving Files 3-8
Opening Files 3-9
Selecting Volumes and Directories 3-10
User Interface Guidelines 3-12
Using the Standard File Package 3-13
Presenting the Standard User Interface 3-14
Customizing the User Interface 3-16
Customizing Dialog Boxes 3-17
Writing a File Filter Function 3-20
Writing a Dialog Hook Function 3-21
Writing a Modal-Dialog Filter Function 3-28
Writing an Activation Procedure 3-30
Setting the Current Directory 3-31
Selecting a Directory 3-34
Selecting a Volume 3-38
Using the Original Procedures 3-40
Standard File Package Reference 3-41
Data Structures 3-41
Enhanced Standard File Reply Record 3-42
Original Standard File Reply Record 3-43
Standard File Package Routines 3-44
Saving Files 3-44
Opening Files 3-49
Application-Defined Routines 3-55
File Filter Functions 3-55
Dialog Hook Functions 3-56
Modal-Dialog Filter Functions 3-57
Activation Procedures 3-59
Summary of the Standard File Package 3-60

Pascal Summary 3-60
Constants 3-60
Data Types 3-62
Standard File Package Routines 3-63
Application-Defined Routines 3-64
C Summary 3-64
Constants 3-64
Data Types 3-66
Standard File Package Routines 3-67
Application-Defined Routines 3-68
Assembly-Language Summary 3-69
Data Structures 3-69
Trap Macros 3-69
Global Variables 3-69

Chapter 4 Alias Manager 4-3

About the Alias Manager 4-3
Alias Records 4-4
Search Strategies 4-5
Relative Searches 4-5
Absolute Searches 4-6
Fast Searches 4-7
Exhaustive Searches 4-8
Using the Alias Manager 4-8
Creating Alias Records 4-9
Resolving Alias Records 4-10
Identifying a Single Target 4-10
Identifying Multiple Targets 4-11
Maintaining Alias Records 4-12
Getting Information From Alias Records 4-13
Customizing Alias Records 4-13
Alias Manager Reference 4-13
Data Structures 4-14
Alias Records 4-14
Alias Manager Routines 4-14
Creating and Updating Alias Records 4-14
Resolving and Reading Alias Records 4-19
Application-Defined Routines 4-25
Filtering Possible Targets 4-25
Summary of the Alias Manager 4-26
Pascal Summary 4-26
Constants 4-26
Data Types 4-26
Alias Manager Routines 4-27
Application-Defined Routine 4-27

C Summary 4-28
Constants 4-28
Data Types 4-28
Alias Manager Routines 4-29
Application-Defined Routine 4-29
Assembly-Language Summary 4-29
Data Structure 4-29
Trap Macros 4-30
Result Codes 4-30

Chapter 5 Disk Initialization Manager 5-3

About the Disk Initialization Manager 5-3
Disk Initialization 5-4
The Disk Initialization User Interface 5-5
Bad Block Sparing 5-7
Using the Disk Initialization Manager 5-9
Responding to Disk-Inserted Events 5-9
Erasing Initialized Disks 5-11
Overriding the Standard Initialization Interface 5-12
Changing Default Volume Characteristics 5-13
Disk Initialization Manager Reference 5-15
Routines 5-15
Loading and Unloading the Disk Initialization Manager 5-15
Initializing a Disk 5-17
Low-Level Disk Initialization Routines 5-19
Summary of the Disk Initialization Manager 5-23
Pascal Summary 5-23
Data Types 5-23
Routines 5-23
C Summary 5-24
Data Types 5-24
Routines 5-24
Assembly-Language Summary 5-25
Data Structures 5-25
Trap Macros 5-25
Global Variables 5-25
Result Codes 5-25

Glossary GL-1

Index IN-1