

Contents

Copyright

Microsoft Software License Agreement

1

About the Windows Resource Kit

Conventions in This Manual

Document Conventions

Syntax Conventions

The Troubleshooting Flowcharts for Windows 3.1

Part 1

Chapter

1

57

About Windows Setup

Running Setup

Choosing Setup Options

Choosing Express Setup vs. Custom Setup

Windows Setup: A Technical Discussion

About the Windows Operating Modes

MS-DOS Mode Setup

Getting Ready for MS-DOS Mode Installation

Setting the Windows Directory and Updating the Version

Identifying Hardware

Modifying SYSTEM.INI to Support Your Hardware

Last Steps for MS-DOS Mode Setup

Windows Mode Setup

Getting Ready for Windows Mode Installation

Completing Custom Application Installation

Updating the System Files

Checking for SMARTDrive and Incompatible Drivers

Updating from Earlier Version of Windows

Completing Setup

Setting Up Windows for a Network

General Guidelines

Placing Windows Files on a Network Server: Setup /a

Setting Up a Shared Copy of Windows: Setup /n

Using Automated Setup: Setup /h

Creating the System Settings File

[sysinfo]

[configuration]

[windir]

[userinfo]

[dontinstall]

[options]

[printers]

Windows Resource Kit

Contents

[endinstall]

Sample System Settings File

Maintaining Windows with Setup

Chapter

2

85

About the Setup Information Files

SETUP.INF: The Setup Information File

General Installation Sections

[setup]

[run]

[dialog]

[winexec]

[data]

[disks] and [oemdisks]

[user]

[windows]

[windows.system]

[windows.system.386] and Related Sections

[shell]

Display Driver Sections

[display]

[.3gr] Font Sections

Keyboard and Code Page Sections

[keyboard.drivers]

[keyboard.types]

[keyboard.tables]

[codepages]

Mouse Driver Sections

[pointing.device]

[dos.mouse.driver]

[lmouse]

Network Installation Sections

[network]

[Network_Version] Sections

[Network_Specific] Sections

System Fonts Sections

Copy-Files Sections

Basic Copy-Files Sections

[DelFiles] Section

Copy-Files Sections for Applications

Program Manager Groups Sections

[new.groups]

[progman.groups]

[group#] Sections

Fonts Sections

Incompatible Driver Sections

Windows Resource Kit

Contents

Miscellaneous Sections

[installable.drivers]

[translate]

[update.files]

[ini.upd.patches]

[blowaway]

[ini.upd.31]

System Configuration Sections

[system]

[machine]

[special_adapter]

[ebios]

[language]

APPS.INF: The Application Installation Information File

[dontfind]

[pif]

CONTROL.INF: The Control Panel Information File

Printer Driver Sections

[io.device]

[io.dependent]

[country]

Modifying .INF Files for Custom Installations

Modifying .INF Files to Install Custom Windows

Removing Hardware Devices from Lists in Setup

Specifying Windows Applications to Install

Forcing the Network Setup Option

Modifying .INF Files to Install Custom Applications

Copying Additional Files to a User's Directory

Adding Custom Groups to Program Manager

Adding Custom PIF Information in APPS.INF

Chapter

3

135

About the Windows Files

WIN.COM

The Core Files

Drivers, Fonts, and International Support Files

Driver Files

System Driver Files

Keyboard Driver Files

Mouse Driver Files

Display Driver Files

Other Driver Files

Printer Driver Files

Network Driver Files

Multimedia Driver Files

Font Files

Windows Resource Kit

Contents

System Font Files

Raster Font Files

Vector Font Files

TrueType Font Files

Font Files for Non-Windows Applications

International Support Files

MS-DOS Support Components of Windows

MS-DOS Driver Files

WinOldAp and the Grabber Files

Files for Standard Mode

Files for 386 Enhanced Mode

Windows Applications, Setup, and Other Files

Files for Windows Applications

Setup-Related Files

Other Files

Files You Can Delete

Chapter

4

157

About the Initialization Files

Format of .INI Files

Changing Entries in .INI Files

Editing the .INI Source Files

Windows 3.1 .INI File Changes

WIN.INI: The Windows Initialization File

[Windows] Section

[desktop] Section

[extensions] Section

[intl] Section

[ports] Section

[fonts] Section

[fontSubstitutes] Section

[TrueType] Section

[mci extensions] Section

[network] Section

[embedding] Section

[Windows Help] Section

[sound] Section

[printerPorts] Section

[devices] Section

[programs] Section

[colors] Section

SYSTEM.INI: The System Initialization File

[boot] Section

[boot.description] Section

[drivers] Section

[keyboard] Section

Windows Resource Kit

Contents

[mci] Section

[NonWindowsApp] Section

[standard] Section

[386enh] Section

Other Windows Initialization Files

Part 2

Chapter

5

227

About Memory

Types of Memory: An Overview

The Windows 3.1 Memory Device Drivers

Expanded Memory: A Technical Discussion

The Expanded Memory Specifications

Bank Switching in Expanded Memory

Backfilling in Expanded Memory

Difficulties with Expanded Memory

Windows Standard Mode and Memory

Extended Memory and Standard Mode

Using Extended Memory for Code Caching

Using Extended Memory with Non-Windows Applications

Expanded Memory and Standard Mode

Windows 386 Enhanced Mode and Memory

WINA20.386 and 386 Enhanced Mode

Extended Memory and 386 Enhanced Mode

Expanded Memory and 386 Enhanced Mode

Page-Frame Conflicts in 386 Enhanced Mode

Placing Translation Buffers in the Upper Memory Area

Controlling UMB Mapping in 386 Enhanced Mode

About 386 Expanded Memory Managers

Virtual Memory and 386 Enhanced Mode

Creating Swap Files for Virtual Memory

Demand Paging and Virtual Memory Management

The LRU Algorithm for Virtual Memory Management

Swapping Pages to a Network Drive

Other Memory Management Issues

DPMI and VCPI Specifications

MS-DOS 5.0 and Windows 3.1

Running Windows Standard Mode with MS-DOS 5.0

Running Windows 386 Enhanced Mode with MS-DOS 5.0

Memory and Windows Startup Requirements

Standard Mode Startup Requirements

386 Enhanced Mode Startup Requirements

Memory and the Windows System Resources

SMARTDrive 4.0: A Technical Discussion

Chapter

6

257

Windows Resource Kit

Contents

Tips for Optimizing Performance

Checklist for Optimizing Performance

Configuring Hardware for Optimal Performance

Configuring MS-DOS for Optimal Performance

Maintaining Optimal Hard Disk Performance

Configuring Windows for Optimal Performance

Optimizing for Non-Windows Applications

Optimizing for TSRs

Optimizing for Windows on a Network

Trading Speed for Hard Disk Space

Optimizing Use of the UMBs

Loading MS-DOS in the HMA

Loading EMM386.EXE to Use the UMBs

Setting the Load Order for Drivers in UMBs

Adjusting EMM386 for Optimal Performance

Adjusting EMM386 to Provide More UMBs

Freeing Conventional Memory in 386 Enhanced Mode

Tips for Using Third-Party Memory Managers

Optimizing with SYSTEM.INI

Tips for Configuring the Windows Shell

Customizing Program Manager

Defining Program Manager Groups

Defining Properties for Program Groups

Setting Up Shared Program Manager Groups

Configuring Program Manager for a Network Workgroup

Customizing File Manager

Defining File Manager Actions

Associating Extensions with File Types

Part 3

Chapter

7

283

About Applications

Setting Up PIFs and Program Items

Setting Up a PIF

Setting Up Icons in Program Manager

Starting Non-Windows Applications with Windows

Starting an Application When Starting Windows

Starting an Application from the Desktop

Running Non-Windows Applications

Running Applications in Standard Mode

How Standard Mode Works with MS-DOS

Application Swap Files and Standard Mode

Running Applications in 386 Enhanced Mode

How 386 Enhanced Mode Works with MS-DOS

Running Applications in a Window

Windows Resource Kit

Contents

SYSTEM.INI Entries for Non-Windows Applications

Tips for Running Non-Windows Applications

General Tips

Rebooting a Non-Windows Application

Notes on Running Non-Windows Applications

DPMI vs. VCPI for Non-Windows Applications

Running Applications That Require Expanded Memory

Using a Mouse with Non-Windows Applications

Applications with PIF Data in APPS.INF

Chapter

8

299

About Creating PIFs

About PIF Editor

The Operating Mode and Basic Parameters

PIF Settings for Standard Mode

PIF Settings for 386 Enhanced Mode

Modifying the Default PIF

Creating Multiple PIFs for a Single Application

Part 4

Chapter

9

309

About Fonts

About Typography in Windows

About Windows Fonts

Windows System Screen Fonts

Windows Raster Fonts

Windows Vector Fonts

Font Installation

How Windows Matches Fonts

TrueType and Windows 3.1

How TrueType Works

Using TrueType in Windows Applications

Disk Space, Memory Use, and Speed

TrueType and Earlier Windows Applications

Printer Fonts and Windows 3.1

Character Sets for Printer Fonts

Dot Matrix Printer Fonts

HPPCL Printer Fonts

Font Cartridges

Downloadable Fonts

Recovering Soft Fonts After Reinstalling Windows

Windows Resource Kit

Contents

HPPCL Driver Font Summary File

HPPCL Soft Font Limitations

About Printer Fonts for HPPCL Printers

Printer Fonts for Other HP Printers

HP DeskJet Printer Fonts

HP PaintJet Printer Fonts

HP Plotter Printer Fonts

PostScript Printer Fonts

LaserWriter Plus Typefaces

PostScript Printers and TrueType

Specifying Virtual Printer Memory

Substituting PostScript Fonts

PostScript Drivers

PostScript Downloadable Outline Fonts

PostScript Cartridges

Canon Printer Fonts

IBM 4019 Laser Printer Fonts

Changing Typeface Names for Soft Fonts

Chapter

10

339

About Windows Printing

Printer Ports

Printing from Parallel Ports

Printing from Serial Ports

WIN.INI [Ports] Settings and the LPTx.DOS Method

Port Entries in the ROM BIOS Data Segment

Examining the ROM BIOS Data Segment

Batch File for Port Entries in ROM BIOS

SYSTEM.INI Modifications for Port Entries in ROM BIOS

Programs that Change the ROM BIOS Data Segment

Determining Print Method

Printing with a Network Driver

Chapter

11

351

About Object Linking and Embedding

About Compound Documents

About Objects, Packages, Clients, and Servers

Windows Support for Compound Documents

OLE and File Manager

OLE and the Clipboard

Clipboard Formats

Formats for Pasting from the Clipboard

OLE and the Edit Menu Commands

Managing the Registration Database

Using the Registration Info Editor

Installing a .REG File

Windows Resource Kit

Contents

Adding a New File Type

Modifying and Removing File Types

Restoring the Registration Database

Part 5

Chapter

12

367

About Networks and Windows 3.1

Running a Shared Copy of Windows

Using a Diskless Workstation

Maintaining Windows with a Network

Memory, Windows, and the Network

Windows Setup and Pop-up Messages

SYSTEM.INI Settings for Networks

Specifying SYSTEM.INI Settings After Using Setup

Changing Memory Settings

Disabling File-Handle Caching

Running Non-Windows Applications

Other Memory Considerations

Creating Custom User Environments

3Com Networks

Artisoft LANtastic

LANtastic Versions 3.x

LANtastic Versions 4.x

Banyan VINES

Banyan VINES 4.0x

Banyan VINES 4.1x

DEC Pathworks

DEC Pathworks 4.1

Questions and Answers about DEC Pathworks

IBM OS/2 LAN Server

IBM PC LAN Program

Invisible Software –NET/30 For Windows

Microsoft LAN Manager Networks

Microsoft Network and Compatibles

Novell NetWare

TCS 10Net

Ungermann-Bass Net/One

Windows Resource Kit

Contents

Part 6

Chapter

13

395

About Troubleshooting

Getting Started with Troubleshooting

Creating a “Clean Boot” for Troubleshooting

Troubleshooting Setup

Troubleshooting TSRs During Setup

Troubleshooting MS-DOS Mode Setup

Troubleshooting Windows Mode Setup

Troubleshooting Windows Configuration

Troubleshooting the Desktop Configuration

Troubleshooting TSR Compatibility Problems

TSRs That Cause Problems with Setup

TSRs That Cause Problems Running with Windows 3.1

TSRs That Need Special Consideration

Troubleshooting Display Problems

Troubleshooting MS-DOS Configuration Problems

Troubleshooting EMS Memory Problems

Troubleshooting Windows Running in Standard Mode

Troubleshooting Windows Running in 386 Enhanced Mode

Troubleshooting for Non-Windows Applications

Troubleshooting Fonts

Troubleshooting Printing

A Strategy for Troubleshooting Printing

Tips for Specific Printing Problems

Troubleshooting Networks

Troubleshooting GP Faults

Tips for Troubleshooting GP Faults

Dr. Watson and GP Faults

Troubleshooting Multimedia

Chapter

14

439

The Windows Resource Kit Utilities

440

440

File Size Information

441

442

442

Other Windows Resource Kit Files

Readme Files

Windows Resource Kit

Contents

Windows Driver Library Files

Network Support Files

Part 7

447

Appendix

A

457

Appendix

B

487

Appendix

C

499

Appendix

D

505

Windows for Pens

QEMM-386 and Windows 3.1

PC-NFS and Windows 3.1

FastDisk: An Introduction to 32-Bit Disk Access

525