

The New Apple II User's Guide  
David Finnigan

All text, photographs, and illustrations are  
copyright 2012 by David Finnigan. All rights reserved.

No part of this book may be reproduced or redistributed  
in any form or by any electronic or mechanical means,  
including information storage and retrieval systems,  
without permission in writing from the author, except  
by a reviewer who may quote brief passages in a review.  
The computer program listings may be entered, stored,  
and executed in a computer system, but only for  
personal use.

ISBN-10: 0615639879

ISBN-13: 978-0-615-63987-1

This book was prepared using Adobe software products  
on Macintosh computers. The display face is Futura.  
Text is in Bookman Old Style.



Published by Mac GUI

# Table of Contents

	:	Introduction	xi
<b>Chapter 1</b>	:	<b>Meeting Your Apple</b>	<b>1</b>
1		About the Apple	
2		Identify Your Apple	
6		The Keyboard	
10		Taking the Lid Off	
12		Memory	
14		Peripheral Expansion Cards	
16		Software	
17		Disks	
22		Hand Controls	
24		Printer	
26		Tips for Buying an Apple	
28		Improvements Over the Past 20 Years	

**Chapter 2** : **Setting Up the Apple** **31**

32	Plugging In
32	Plugs Keyboard
33	Mouse
34	Monitor
38	Joystick or Game Paddles
39	Cassette Tape Recorder
41	Disk Drive
45	Printer
48	Power Cord
49	Powering Up
53	Starting from a Disk
53	Adjusting the Speaker Volume
54	A Word About Prompts
56	Getting Familiar with the Keyboard
57	Using Escape Key Sequences
58	Adding Text to a Line
59	Removing Text from a Line
60	Three More Line Editing Commands
61	Avoiding Getting Roasted with Reset
62	Simulating a Restart

**Chapter 3** : **Beginning BASIC** **65**

- 65 About BASIC
- 66 Programs, Statements, and Commands
- 66 Syntax
- 67 The Two BASICs
- 68 Getting into BASIC
- 69 Upper Versus Lowercase
- 70 Your First BASIC Command
- 70 Errors
- 71 Printing Text on Screen
- 72 Immediate Versus Deferred Execution
- 73 The Rest of the PRINT Command
- 73 Printing Numbers and Calculations
- 75 Combining Calculations and Characters
- 76 A Shorter PRINT Command
- 76 Finishing the Program with END
- 77 Running Your Program
- 78 Examining the Program
- 79 Modifying the Program
- 82 Putting Multiple Statements on One Line
- 83 Adding Comments to a Program
- 84 Clearing the Screen
- 84 Automatic Line Numbering
- 85 Saving and Loading Programs

**Chapter 4** : **Advanced BASIC** **89**

- 89 Strings
- 91 Numbers
- 93 Variables
- 95 Arrays
- 99 Expressions
- 108 Assigning Values
- 114 Displaying values
- 115 Entering Values
- 118 Functions
- 123 Defining Your Own Functions
- 124 Function Nesting
- 125 Random Numbers

**Chapter 5 : Program Design and Control 127**

- 127 Jumping Around with Branches
- 131 Loops
- 137 Computing Prime Numbers
- 138 Subroutines: a Program Within a Program
- 143 Making Decisions with IF Statements
- 144 Stopping and Starting a Program
- 146 Low-level Programming
- 148 Program Debugging

**Chapter 6 : Input and Output Formatting 153**

- 154 Programming the Apple Mouse II
- 163 Programming the Game Controllers
- 166 User-friendly Input
- 167 Alternate Ways to Read the Keyboard
- 170 Text Styles
- 172 Screen Formatting
- 184 Changing the Text Window
- 186 Controlling the Cursor
- 189 Using MouseText
- 194 Entering Phone Numbers

204	Basics of the Disk
204	The Ilgs System
205	DOS and ProDOS Basics
206	Inserting and Removing Disks
208	Protecting Disks
211	Booting DOS
214	Getting Connected with DOS
215	Specifying the Slot, Drive, and Volume
215	Listing the Contents of a Disk
219	Preparing a New Disk
221	ProDOS Directories
224	Deleting Files
224	Locking and Unlocking Files
225	Renaming Files
225	Verifying Files
226	Copying Disks
226	Converting from DOS 3.3 to ProDOS
229	Using the FocusDrive
230	Other Hard Disk Systems
231	Programming Data Files
234	Using Sequential Files
249	Word Processing Program
259	Using Random-Access Files
272	Setting DOS 3.3 File Buffers
273	Automating the Apple
277	Working with Binary Files
280	Running any File with the Dash
281	Tracing DOS 3.3 Commands
282	Managing DOS 3.3 Disks with FID
286	Managing ProDOS Disks with the Filer

**Chapter 8 : Graphics and Sound 293**

294	Low-Resolution and High-Resolution
294	Low-Resolution Example
295	Switching Between Text and Graphics Modes
297	Setting Colors
298	Plotting on the Screen
299	A Simple Drawing Program
303	Drawing Lines
305	Drawing Diagonal Lines
306	Determining Screen Color
307	High-Resolution Graphics
311	Plotting Bar Graphs
313	Plotting Circles
316	Plotting Polygons
317	Shape Tables
318	Creating a Shape by Hand
330	Shape Table Maker
333	Drawing Shapes on Screen
336	Shape Sampler Program
337	Tic Tac Toe Game with Shapes
343	Other Graphics Modes
344	Sound
345	Tweaking the Speaker in BASIC
346	Machine Language Speaker
349	Music Program
351	Sound on the Apple IIs

**Chapter 9 : Printing 353**

353	Printer Cards
354	Configuring the Super Serial Card
356	Using the ImageWriter II
362	Activating the Printer
362	Sending Text to the Screen and Printer
364	Printing a Disk Catalog
364	Printing a Program Listing
365	Deactivating the Printer
365	Programming the Printer
367	Formatting Printer Output
370	Printer Control Characters
374	Print Subroutine for the Word Processor

**Chapter 10** : **Networking** **385**

- 385 The Basics of Serial Communication
- 386 Getting Serial on Your Apple
- 387 Configuring the Super Serial Card
- 393 Using the Apple as a Terminal
- 397 Networking with AppleTalk
- 404 TCP/IP and Ethernet
- 404 About the Uthernet Card
- 405 Installing Uthernet
- 407 Contiki
- 409 Using the Contiki Web Browser
- 410 Downloading Files with the Contiki FTP Client
- 411 Chatting with the Contiki IRC Client
- 413 Marinetti
- 415 Spectrum
- 418 Browsing the Web with SIS
- 423 Sending and Receiving Email with SAM2
- 425 Reading Usenet with SNAP
- 430 Accessing an FTP Site with SAFE2
- 432 Tweeting with Iltter
- 433 NadaNet

**Chapter 11** : **Machine Language Monitor** **435**

- 436 What is Machine Language?
- 437 Evolution of the Monitor
- 437 Accessing the Monitor
- 438 Displaying Memory
- 440 Modifying Memory
- 442 Running Programs
- 442 Copying Memory
- 444 Comparing Memory
- 445 Searching Memory
- 446 Redirecting Input and Output
- 447 Booting a Disk
- 448 Activating the 80-Columns Screen
- 448 Leaving the Monitor
- 449 Performing Calculations
- 450 Storing and Loading Memory
- 454 Changing Screen Display Mode
- 454 Disassembling Machine Language Programs
- 456 The Mini-Assembler
- 459 Using the Mini-Assembler
- 462 Debugging Machine Language Programs
- 468 Entering Multiple Commands
- 468 User-Defined Command
- 468 Working with BASIC and Machine Language

**Chapter 12** : **The IIGS and GS/OS** **471**

- 472 The IIGS Operating System
- 473 How to Use the Mouse
- 475 Using the Finder
- 482 Working with Compressed Files and Archives
- 484 The Control Panel
- 489 Using Desk Accessories
- 490 Mounting Disk Images
- 491 Making Disks from Disk Images
- 492 Multitasking with GNO/ME

Appendix <b>A</b> : Further Reading	507
Appendix <b>B</b> : Summary of Commands and Functions	513
Appendix <b>C</b> : Peeks and Pokes	643
Appendix <b>D</b> : Using ADT to Transfer Disks	649
Appendix <b>E</b> : Tables and Conversion Charts	659
Appendix <b>F</b> : Specs for all Apple II models	667
Appendix <b>G</b> : Repair and Troubleshooting	677
Appendix <b>H</b> : Built-in Subroutines	697
Appendix <b>I</b> : Error Messages	703
: Glossary	721
: Index	745