

**Save 10%**  
on Exam Vouchers  
Coupon Inside!

Emmett Dulaney and Troy McMillan



# COMPLETE REVIEW GUIDE

**Second Edition**

- + Targeted Review for the CompTIA A+ Exams
- + Includes Access to a Full Set of Online Review Tools
- + The Perfect Companion to Any A+ Learning Tool



EXAM 220-801  
EXAM 220-802



SERIOUS SKILLS.

---

# Table of Contents

[Cover](#)

[Title](#)

[Copyright](#)

[Dedication](#)

[Acknowledgments](#)

[About the Authors](#)

[Introduction](#)

[PART I: CompTIA A+ 220-801](#)

[Chapter 1: PC Hardware](#)

[1.1 Configure and apply BIOS settings](#)

[1.2 Differentiate between motherboard components, their purposes, and properties](#)

[1.3 Compare and contrast RAM types and features](#)

[1.4 Install and configure expansion cards](#)

[1.5 Install and configure storage devices and use appropriate media](#)

[1.6 Differentiate among various CPU types and features and select the appropriate cooling method](#)

[1.7 Compare and contrast various connection interfaces and explain their purpose](#)

[1.8 Install an appropriate power supply based on a given scenario](#)

[1.9 Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs](#)

[1.10 Given a scenario, evaluate types and features of display devices](#)

[1.11 Identify connector types and associated cables](#)

[1.12 Install and configure various peripheral devices](#)

[Review Questions](#)

[Chapter 2: Networking](#)

[2.1 Identify types of network cables and connectors](#)

[2.2 Categorize characteristics of connectors and cabling](#)

[2.3 Explain properties and characteristics of TCP/IP](#)

[2.4 Explain common TCP and UDP ports, protocols, and their purpose](#)

[2.5 Compare and contrast wireless network standards and encryption types](#)

[2.6 Install, configure, and deploy a SOHO wireless/wired router using appropriate settings](#)

[2.7 Compare and contrast Internet connection types and features](#)

[2.8 Identify various types of networks](#)

[2.9 Compare and contrast network devices and their functions and features](#)

[2.10 Given a scenario, use appropriate networking tools](#)

## Review Questions

---

### Chapter 3: Laptops

3.1 Install and configure laptop hardware and components

3.2 Compare and contrast the components within the display of a laptop

3.3 Compare and contrast laptop features

### Review Questions

### Chapter 4: Printers

4.1 Explain the differences between the various printer types and summarize the associated imaging process

4.2 Given a scenario, install and configure printers

4.3 Given a scenario, perform printer maintenance

### Review Questions

### Chapter 5: Operational Procedures

5.1 Given a scenario, use appropriate safety procedures

5.2 Explain environmental impacts and the purpose of environmental controls

5.3 Given a scenario, demonstrate proper communication and professionalism

5.4 Explain the fundamentals of dealing with prohibited content/activity

### Review Questions

## PART II: CompTIA A+ 220-802

### Chapter 6: Operating Systems

1.1 Compare and contrast the features and requirements of various Microsoft Operating Systems

1.2 Given a scenario, install and configure the operating system using the most appropriate method

1.3 Given a scenario, use appropriate command line tools

1.4 Given a scenario, use appropriate operating system features and tools

1.5 Given a scenario, use Control Panel utilities

1.6 Setup and configure Windows networking on a client/desktop

1.7 Perform preventive maintenance procedures using appropriate tools

1.8 Explain the differences among basic OS security settings

1.9 Explain the basics of client-side virtualization

### Review Questions

### Chapter 7: Security

2.1 Apply and use common prevention methods

2.2 Compare and contrast common security threats

2.3 Implement security best practices to secure a workstation

2.4 Given a scenario, use the appropriate data destruction/disposal method

2.5 Given a scenario, secure a SOHO wireless network

## [2.6 Given a scenario, secure a SOHO wired network](#)

---

### [Review Questions](#)

#### [Chapter 8: Mobile Devices](#)

[3.1 Explain the basic features of mobile operating systems](#)

[3.2 Establish basic network connectivity and configure email](#)

[3.3 Compare and contrast methods for securing mobile devices](#)

[3.4 Compare and contrast hardware differences in regards to tablets and laptops](#)

[3.5 Execute and configure mobile device synchronization](#)

### [Review Questions](#)

#### [Chapter 9: Troubleshooting](#)

[4.1 Given a scenario, explain the troubleshooting theory](#)

[4.2 Given a scenario, troubleshoot common problems related to motherboards, RAM, CPU and power with appropriate tools](#)

[4.3 Given a scenario, troubleshoot hard drives and RAID arrays with appropriate tools](#)

[4.4 Given a scenario, troubleshoot common video and display issues](#)

[4.5 Given a scenario, troubleshoot wired and wireless networks with appropriate tools](#)

[4.6 Given a scenario, troubleshoot operating system problems with appropriate tools](#)

[4.7 Given a scenario, troubleshoot common security issues with appropriate tools and best practices](#)

[4.8 Given a scenario, troubleshoot, and repair common laptop issues while adhering to the appropriate procedures](#)

[4.9 Given a scenario, troubleshoot printers with appropriate tools](#)

### [Review Questions](#)

#### [Appendix A: Answers to Review Questions](#)

[Chapter 1: PC Hardware](#)

[Chapter 2: Networking](#)

[Chapter 3: Laptops](#)

[Chapter 4: Printers](#)

[Chapter 5: Operational Procedures](#)

[Chapter 6: Operating Systems](#)

[Chapter 7: Security](#)

[Chapter 8: Mobile Devices](#)

[Chapter 9: Troubleshooting](#)

#### [Appendix B: About the Additional Study Tools](#)

[Additional Study Tools](#)

[System Requirements](#)

[Using the Study Tools](#)

[Troubleshooting](#)

## List of Illustrations

### Chapter 1: PC Hardware

[Figure 1.1 BIOS virtualization](#)

[Figure 1.2 Temperature monitoring](#)

[Figure 1.3 Voltage](#)

[Figure 1.4 Clock](#)

[Figure 1.5 An ATX-style motherboard](#)

[Figure 1.6 PCI bus connectors](#)

[Figure 1.7 miniPCI](#)

[Figure 1.8 CNR](#)

[Figure 1.9 An AGP slot on a motherboard](#)

[Figure 1.10 Various memory module form factors](#)

[Figure 1.11 A PGA CPU socket](#)

[Figure 1.12 Chipsets](#)

[Figure 1.13 A jumper set and DIP switches](#)

[Figure 1.14 Power connectors on a motherboard](#)

[Figure 1.15 Pin Fan Connector](#)

[Figure 1.16 Front panel power connectors](#)

[Figure 1.17 Dual inline memory module \(DIMM\)](#)

[Figure 1.18 Dual-channel memory slots](#)

[Figure 1.19 PCMCIA 3G modem](#)

[Figure 1.20 Riser card](#)

[Figure 1.21 Serial ATA](#)

[Figure 1.22 Master/slave jumpers](#)

[Figure 1.23 Magnetic HD](#)

[Figure 1.24 CHS](#)

[Figure 1.25 USB flash](#)

[Figure 1.26 SD and compact flash](#)

[Figure 1.27 USB connectors](#)

[Figure 1.28 Connections on a FireWire card](#)

---

[Figure 1.29 DB-25, DB-15, and DB-9](#)

[Figure 1.30 Centronics](#)

[Figure 1.31 VGA port](#)

[Figure 1.32 HDMI types A and C](#)

[Figure 1.33 HDMI Type B](#)

[Figure 1.34 DVI connectors](#)

[Figure 1.35 TRS connector](#)

[Figure 1.36 RJ-11 and RJ-45](#)

[Figure 1.37 Cooling system](#)

[Figure 1.38 HDMI plug](#)

[Figure 1.39 Compact form factor](#)

[Figure 1.40 CRT](#)

[Figure 1.41 DVI connectors](#)

[Figure 1.42 DisplayPort](#)

[Figure 1.43 RCA plugs](#)

[Figure 1.44 DB-15](#)

[Figure 1.45 BNC](#)

[Figure 1.46 6-pin miniDIN](#)

[Figure 1.47 SATA connections](#)

[Figure 1.48 eSATA connections](#)

[Figure 1.49 PATA connectors](#)

[Figure 1.50 34-pin floppy cable](#)

[Figure 1.51 SCSI connectors](#)

[Figure 1.52 PS/2](#)

[Figure 1.53 Printer connector](#)

[Figure 1.54 DB-9](#)

[Figure 1.55 SATA data cable](#)

[Figure 1.56 Ribbon cable](#)

[Figure 1.57 DB-9 serial cable](#)

[Figure 1.58 Twisted pair cabling](#)

[Figure 1.59 DB-15 game port](#)

[Figure 2.1 Fiber-optic cable](#)

---

[Figure 2.2 Fiber connectors ST, SC, and LC](#)

[Figure 2.3 Twisted-pair cable](#)

[Figure 2.4 RJ-11 and RJ-45 connectors](#)

[Figure 2.5 Pin assignments for T568A and T568B](#)

[Figure 2.6 Coaxial cable construction](#)

[Figure 2.7 Common BNC connectors](#)

[Figure 2.8 Baseband versus broadband signaling](#)

[Figure 2.9 Network termination in a coax network](#)

[Figure 2.10 A vampire tap and a T-connector on a coax](#)

### Chapter 3: Laptops

[Figure 3.1 Laptop expansion cards](#)

[Figure 3.2 SoDIMMS, SIMMs, and DIMMs](#)

[Figure 3.3 Lock slot](#)

[Figure 3.4 Connected lock](#)

### Chapter 4: Printers

[Figure 4.1 An EP toner cartridge](#)

[Figure 4.2 The EP laser scanning assembly \(side view and simplified top view\)](#)

[Figure 4.3 Paper transport rollers](#)

[Figure 4.4 The transfer corona assembly](#)

[Figure 4.5 The fusing assembly](#)

[Figure 4.6 The cleaning step of the EP process](#)

[Figure 4.7 The conditioning step of the EP process](#)

[Figure 4.8 The writing step of the EP process](#)

[Figure 4.9 The developing step of the EP process](#)

[Figure 4.10 The transferring step of the EP process](#)

[Figure 4.11 The fusing step of the EP process](#)

[Figure 4.12 The EP print process](#)

[Figure 4.13 A typical ink cartridge](#)

[Figure 4.14 Printers in Windows 7](#)

[Figure 4.15 Adding a printer in Windows 7](#)

### Chapter 5: Operational Procedures

[Figure 5.1 Proper ESD strap connection](#)

[Figure 5.2 Proper use of an ESD mat](#)

---

[Figure 5.3 A simple voltmeter](#)

[Figure 5.4 The reset button on the top of a surge-protector power strip](#)

[Figure 5.5 A simple surge protector](#)

[Figure 5.6 Dust builds up inside the system.](#)

[Figure 5.7 Dust collects in unused ports as well.](#)

## Chapter 6: Operating Systems

[Figure 6.1 The opening interface of Event Viewer](#)

[Figure 6.2 Mapped network drives](#)

[Figure 6.3 The Tools tab for a hard drive](#)

[Figure 6.4 The System Restore option](#)

[Figure 6.5 Sharing a folder in Windows 7](#)

[Figure 6.6 Sharing a folder in Windows XP](#)

[Figure 6.7 Advanced Sharing in Windows 7](#)

## Chapter 7: Security

[Figure 7.1 A proxy firewall blocking network access from external networks](#)

[Figure 7.2 A dual-homed firewall segregating two networks from each other](#)

[Figure 7.3 Virus spreading from an infected system using the network or removable media](#)

[Figure 7.4 An email virus spreading geometrically to other users](#)

[Figure 7.5 A multipartite virus commencing an attack on a system](#)

[Figure 7.6 The polymorphic virus changing its characteristics](#)

[Figure 7.7 A stealth virus hiding in a disk boot sector](#)

[Figure 7.8 A cable in the security slot keeps the laptop from being carried away easily.](#)

## Chapter 9: Troubleshooting

[Figure 9.1 Removing the enclosure](#)

[Figure 9.2 Using fdisk](#)

[Figure 9.3 Punch-down tool](#)

[Figure 9.4 Toner probe](#)

[Figure 9.5 Crimper](#)

[Figure 9.6 Ping](#)

[Figure 9.7 Using ipconfig](#)

[Figure 9.8 Using tracert](#)

[Figure 9.9 Using netstat](#)



[Figure 9.10 Using nbtstat](#)

---

[Figure 9.11 Typing net use lets you see what is currently shared.](#)

[Figure 9.12 Service dependencies](#)

[Figure 9.13 Compatibility tab](#)

[Figure 9.14 MSCONFIG](#)

[Figure 9.15 Using Disk Defragmenter in XP](#)

[Figure 9.16 Pop-up Blocker Settings](#)

[Figure 9.17 NIC settings](#)

## List of Tables

### Chapter 1: PC Hardware

[Table 1.1 Parallel port settings](#)

[Table 1.2 Socket types and the processors they support](#)

[Table 1.3 Selected memory details](#)

[Table 1.4 ATA standards](#)

[Table 1.5 Floppy disk capacities](#)

[Table 1.6 SATA and IDE speeds](#)

### Chapter 2: Networking

[Table 2.1 Cable types](#)

[Table 2.2 Fiber speeds and limitations](#)

[Table 2.3 Twisted-pair speeds and limitations](#)

[Table 2.4 Coax speeds and limitations](#)

[Table 2.5 IP address classes](#)

[Table 2.6 IPv4 vs. IPv6](#)

[Table 2.7 Private address ranges](#)

[Table 2.8 Default subnet values](#)

[Table 2.9 Comparison of 802.11 standards](#)

[Table 2.10 DSL speeds](#)

### Chapter 6: Operating Systems

[Table 6.1 Windows Vista features](#)

[Table 6.2 Windows 7 features](#)

[Table 6.3 Windows 7 features](#)

[Table 6.4 Windows XP minimum and recommended hardware](#)

[Table 6.5 Windows Vista minimum hardware](#)

---

[Table 6.6 Windows 7 minimum hardware](#)

[Table 6.7 Windows 7 upgrade options](#)

[Table 6.8 Windows Vista upgrade options](#)

[Table 6.9 Windows unattended installation methods](#)

[Table 6.10 PING options](#)

[Table 6.11 NETSTAT options](#)

[Table 6.12 IPCONFIG switches](#)

[Table 6.13 NET switches](#)

[Table 6.14 NET SHARE parameters](#)

[Table 6.15 CD, MD, and RD use and switches](#)

[Table 6.16 FORMAT switches](#)

[Table 6.17 XCOPY switches](#)

[Table 6.18 SFC switches](#)

[Table 6.19 Recovery Console commands](#)

[Table 6.20 Windows administrative tools](#)

[Table 6.21 Run line utilities](#)

[Table 6.22 Network connection options](#)

[Table 6.23 NTFS directory permissions](#)

[Table 6.24 NTFS file permissions](#)

## Chapter 9: Troubleshooting

[Table 9.1: System Recovery options](#)

---

# CompTIA A+® Complete Review Guide

Second Edition

Emmett Dulaney

Troy McMillan



John Wiley & Sons, Inc.

Senior Acquisitions Editor: Jeff Kellum

Development Editor: Dick Margulis

---

Technical Editors: Robin Abernathy, Ian Seaton

Production Editor: Rebecca Anderson

Copy Editor: Elizabeth Welch

Editorial Manager: Pete Gaughan

Production Manager: Tim Tate

Vice President and Executive Group Publisher: Richard Swadley

Vice President and Publisher: Neil Edde

Media Project Manager 1: Laura Moss-Hollister

Media Associate Producer: Doug Kuhn

Media Quality Assurance: Shawn Patrick

Book Designer: Happenstance Type-O-Rama

Compositor: Craig Woods, Happenstance Type-O-Rama

Proofreader: Rebecca Rider

Indexer: Robert Swanson

Project Coordinator, Cover: Katherine Crocker

Cover Designer: Ryan Sneed

Cover Image: © Jeremy Woodhouse / Photodisc / Getty Images

Published simultaneously in Canada

ISBN: 978-1-118-32408-0

ISBN: 978-1-118-46386-4 (ebk.)

ISBN: 978-1-118-42187-1 (ebk.)

ISBN: 978-1-118-43406-2 (ebk.)

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at <http://www.wiley.com/go/permissions>.

**Limit of Liability/Disclaimer of Warranty:** The publisher and the author make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation warranties of fitness for a particular purpose. No warranty may be created or extended by sales or promotional materials. The advice and strategies contained herein may not be suitable for every situation. This work is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional services. If professional assistance is required, the services of a competent professional person should be sought. Neither the publisher nor the author shall be liable for damages arising herefrom. The fact that an organization or Web site is referred to in this work as a citation and/or a potential source of further information does not mean that the author or the publisher endorses the information the organization or Web site may provide or recommendations it may make. Further, readers should be aware that Internet Web sites listed in this work may have changed or disappeared between when this work was written and when it is read.

For general information on our other products and services or to obtain technical support, please contact our Customer Care Department within the U.S. at (877) 762-2974, outside the U.S. at (317) 572-3993 or fax (317) 572-4002.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at <http://booksupport.wiley.com>. For more information about Wiley products, visit [www.wiley.com](http://www.wiley.com).

**Library of Congress Control Number: 2012944685**

**TRADEMARKS:** Wiley, the Wiley logo, and the Sybex logo are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates, in the United States and other countries, and may not be used without written permission. CompTIA A+ is a registered trademark of the Computing Technology Industry Association, Inc. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc. is not associated with any product or vendor mentioned in this book.

Dear Reader,

---

Thank you for choosing *CompTIA A+ Complete Review Guide, Second Edition*. This book is part of a family of premium-quality Sybex books, all of which are written by outstanding authors who combine practical experience with a gift for teaching.

Sybex was founded in 1976. More than 30 years later, we're still committed to producing consistently exceptional books. With each of our titles, we're working hard to set a new standard for the industry. From the paper we print on, to the authors we work with, our goal is to bring you the best books available.

I hope you see all that reflected in these pages. I'd be very interested to hear your comments and get your feedback on how we're doing. Feel free to let me know what you think about this or any other Sybex book by sending me an email at [nedde@wiley.com](mailto:nedde@wiley.com). If you think you've found a technical error in this book, please visit <http://sybex.custhelp.com>. Customer feedback is critical to our efforts at Sybex.

Best regards



Neil Edde  
Vice President and Publisher  
Sybex, an Imprint of Wiley

*For Jim and Linda: thank you for always being there.*

---

*—Emmett Dulaney*

*For my dear father, who has always supported me no matter what.*

*—Troy McMillan*

---

## Acknowledgments

There are a great many people without whom this book would not be possible. Among them is Jeff Kellum, who does his job as an acquisitions editor extremely well and pulls you along with him. Thanks must also go to Faithe Wempen and David Groth for their work on earlier editions of this book.

—*Emmett Dulaney*

Special thanks go out to Jeff Kellum as always, and to Robin Abernathy, who did an incredible job on the technical edit. I also would like thank Dick Margulis, the development editor, who ensured that we kept everything on track and met our deadlines. Finally, thanks to Emmett, who was a pleasure to work with.

—*Troy McMillan*



---

## About the Authors

**Emmett Dulaney** holds or has held 18 vendor certifications and is the author of over 30 books. An associate professor at Anderson University, he is the former director of training for Mercury Technical Solutions. He specializes in certification and cross-platform integration, and is a columnist for CertCities and Campus Technology. Emmett can be reached at [eadulaney@comcast.net](mailto:eadulaney@comcast.net).

**Troy McMillan** writes practice tests and study guides for Kaplan Cert Prep, while also running his own training and consulting company. Holding over 30 industry certifications in Cisco, CompTIA, Microsoft, and wireless technologies, Troy is also a Cisco Certified trainer, MCT, and author of a number of books on technology-related subjects. Troy can be reached at [mcmillantroy@hotmail.com](mailto:mcmillantroy@hotmail.com).

# Introduction

The A+ certification program was developed by the Computing Technology Industry Association (CompTIA) to provide an industry-wide means of certifying the competency of computer service technicians. The A+ certification, which is granted to those who have attained the level of knowledge and troubleshooting skills that are needed to provide capable support in the field of personal computers, is similar to other certifications in the computer industry. The theory behind these certifications is that if you needed to have service performed on any of their products, you would sooner call a technician who has been certified in one of the appropriate programs than you would just call the first so-called “expert” in the phone book.

CompTIA’s A+ exam objectives are periodically updated to keep the certification applicable to the most recent hardware and software. This is necessary because a technician must be able to work on the latest equipment. The most recent revisions to the objectives—and to the whole program—were introduced in 2012 and are reflected in this book.

This book and the Sybex *CompTIA A+ Complete Study Guide* (both the Standard and Deluxe Editions) are tools to help you prepare for this certification—and for the new areas of focus of a modern computer technician’s job.

## What Is A+ Certification?

The A+ certification program was created to offer a wide-ranging certification, in the sense that it’s intended to certify competence with personal computers from many different makers and vendors. Everyone must take and pass two exams: 220-801 and 220-802.



Note that for the new exams, CompTIA did away with the user-friendly naming that existed with previous editions: Essentials and Practical Applications.

You don’t have to take the 220-801 exam and the 220-802 exam at the same time. However, the A+ certification isn’t awarded until you’ve passed both tests.

For the latest pricing on the exams and updates to the registration procedures, call Pearson VUE at (877) 551-7587. You can also go to [www.pearsonvue.com](http://www.pearsonvue.com) for additional information or to register online. If you have further questions about the scope of the exams or related CompTIA programs, refer to the CompTIA website at [www.comptia.org](http://www.comptia.org).

## Who Should Buy This Book?

If you want to acquire a solid foundation in personal computer basics, and your goal is to prepare for the exams by filling in any gaps in your knowledge, this book is for you. You’ll find clear explanations of the concepts you need to grasp and plenty of help to achieve the high level of professional competency you need in order to succeed in your chosen field.

If you want to become certified as an A+ holder, this book is definitely what you need. However, if you just want to attempt to pass the exam without really understanding the basics of personal

computers, this guide isn't for you. It's written for people who want to acquire skills and knowledge of PC basics.

---

## How to Use This Book and the Companion Website

We've included several testing features in the book and on the companion website. These tools will help you retain vital exam content as well as prepare to sit for the actual exams:

**Chapter Review Questions** To test your knowledge as you progress through the book, there are review questions at the end of each chapter. As you finish each chapter, answer the review questions and then check your answers—the correct answers appear in Appendix A. You can go back to reread the section that deals with each question you got wrong to ensure that you answer correctly the next time you're tested on the material.



Instructions on how to download the electronic flashcards and the bonus practice exams can be found at [www.sybex.com/go/aplusrg2e](http://www.sybex.com/go/aplusrg2e).

**Electronic Flashcards** We've provided electronic flashcard for on-the-go review. These are short questions and answers, just like the flashcards you probably used to study in school.

**Test Engine** We've also included the Sybex Test Engine. Using this custom test engine, you can identify weak areas up front and then develop a solid studying strategy using each of these robust testing features. Our thorough readme file will walk you through the quick, easy installation process. There are a total of four practice exams: two for exam 220-801 and two for 220-802. Take these practice exams just as if you were taking the actual exam (without any reference material). When you've finished the first exam, move on to the next one to solidify your test-taking skills. If you get more than 90 percent of the answers correct, you're ready to take the certification exams.

**Glossary of Terms in PDF** From the companion website, we have included a very useful glossary of terms in PDF format so you can easily read it on any computer. If you have to travel and brush up on any key terms, you can do so with this useful resource.

## Tips for Taking the A+ Exams

Here are some general tips for taking your exams successfully:

- Bring two forms of ID with you. One must be a photo ID, such as a driver's license. The other can be a major credit card or a passport. Both forms must include a signature.
- Arrive early at the exam center so you can relax and review your study materials, particularly tables and lists of exam-related information.
- Read the questions carefully. Don't be tempted to jump to an early conclusion. Make sure you know exactly what the question is asking.
- Don't leave any unanswered questions. Unanswered questions are scored against you.
- There will be questions with multiple correct responses. When there is more than one correct answer, a message at the bottom of the screen will prompt you to either "Choose two." or "Choose

all that apply.” Be sure to read the messages displayed to know how many correct answers you must choose.

- When answering multiple-choice questions you’re not sure about, use a process of elimination to get rid of the obviously incorrect answers first. Doing so will improve your odds if you need to make an educated guess.
- On form-based tests (nonadaptive), because the hard questions will eat up the most time, save them for last. You can move forward and backward through the exam.
- For the latest pricing on the exams and updates to the registration procedures, visit CompTIA’s website at [www.comptia.org](http://www.comptia.org).

### Performance-Based Questions

CompTIA has begun to include performance-based questions on their exams. These differ from the traditional multiple-choice questions in that the candidate is expected to perform a task or series of tasks. Don’t be surprised if on the exams you are presented with a scenario and asked to complete a task.

## Exam Objectives

CompTIA goes to great lengths to ensure that its certification programs accurately reflect the IT industry’s best practices. The company does this by establishing Cornerstone Committees for each of its exam programs. Each committee consist of a small group of IT professionals, training providers, and publishers who are responsible for establishing the exam’s baseline competency level and who determine the appropriate target audience level.

Once these factors are determined, CompTIA shares this information with a group of hand-selected Subject Matter Experts (SMEs). These folks are the true brainpower behind the certification program. They review the committee’s findings, refine them, and shape them into the objectives you see before you. CompTIA calls this process a Job Task Analysis (JTA).

Finally, CompTIA conducts a survey to ensure that the objectives and weightings truly reflect the job requirements. Only then can the SMEs go to work writing the hundreds of questions needed for the exam. And, in many cases, they have to go back to the drawing board for further refinements before the exam is ready to go live in its final state. So, rest assured, the content you’re about to learn will serve you long after you take the exam.



Exam objectives are subject to change at any time without prior notice and at CompTIA’s sole discretion. Please visit the certification page of CompTIA’s website at [www.comptia.org](http://www.comptia.org) for the most current listing of exam objectives.

CompTIA also publishes relative weightings for each of the exam’s objectives. The following tables list the objective domains and the extent to which they’re represented on each exam. For example, on the 220-801 exam expect to spend more time answering questions that pertain to PC hardware than to printers.

<b>220-801 Exam Domains</b>	<b>% of Exam</b>
1.0 PC Hardware	40%
2.0 Networking	27%
3.0 Laptops	11%
4.0 Printers	11%
5.0 Operational Procedures	11%
<b>Total</b>	<b>100%</b>

<b>220-802 Exam Domains</b>	<b>% of Exam</b>
1.0 Operating Systems	33%
2.0 Security	22%
3.0 Mobile Devices	9%
4.0 Troubleshooting	36%
<b>Total</b>	<b>100%</b>

The following sections look at the objectives beneath each of these in more detail.

## **CompTIA 220-801 Exam Objectives**

### **1.0 PC Hardware**

#### **1.1 Configure and apply BIOS settings.**

- Install firmware upgrades – flash BIOS
- BIOS component information
  - RAM
  - Hard drive
  - Optical drive
  - CPU
- BIOS configurations
  - Boot sequence
  - Enabling and disabling devices
  - Date/time
  - Clock speeds
  - Virtualization support
  - BIOS security (passwords, drive encryption: TPM, lo-jack)
- Use built-in diagnostics
- Monitoring
  - Temperature monitoring

- Fan speeds

- 
- Intrusion detection/notification

- Voltage

- Clock

- Bus speed

1.2 Differentiate between motherboard components, their purposes, and properties.

- Sizes

- ATX

- Micro-ATX

- ILX

- Expansion Slots

- PCI

- PCI-X

- PCIe

- miniPCI

- CNR

- AGP2x, 4x, 8x

- RAM slots

- CPU sockets

- Chipsets

- North Bridge

- South Bridge

- CMOS battery

- Jumpers

- Power connections and types

- Fan connectors

- Front panel connectors

- USB

- Audio

- Power button

- Power light

- Drive activity lights

- Reset button

- Bus speeds
- 

### 1.3 Compare and contrast RAM types and features.

- Types
  - DDR
  - DDR2
  - DDR3
  - SDRAM
  - SODIMM
  - RAMBUS
  - DIMM
  - Parity vs. non-parity
  - ECC vs. non-ECC
  - RAM configurations
    - Single channel vs. dual channel vs. triple channel
    - Single sided vs. double sided
- RAM compatibility and speed

### 1.4 Install and configure expansion cards.

- Sound cards
- Video cards
- Network cards
- Serial and parallel cards
- USB cards
- FireWire cards
- Storage cards
- Modem cards
- Wireless/cellular cards
- TV tuner cards
- Video capture cards
- Riser cards

### 1.5 Install and configure storage devices and use appropriate media.

- Optical drives
  - CD-ROM
  - DVD-ROM

- Blu-Ray
- 
- Combo drives and burners
    - CD-RW
    - DVD-RW
    - Dual Layer DVD-RW
    - BD-R
    - BD-RE
  - Connection Types
    - External
      - USB
      - FireWire
      - eSATA
      - Ethernet
    - Internal SATA, IDE and SCSI
      - IDE configuration and setup (Master, Slave, Cable Select)
      - SCSI IDs (0-15)
  - Hot swappable drives
  - Hard drives
    - Magnetic
    - 5400 rpm
    - 7200 rpm
    - 10,000 rpm
    - 15,000 rpm
  - Solid state/flash drives
    - Compact flash
    - SD
    - Micro-SD
    - Mini-SD
    - xD
    - SSD
  - RAID Types
    - 0
    - 1



- [click Utilitarianism: For and Against](#)
- [download \*The Alchemy of Forever \(Incarnation, Book 1\)\* pdf, azw \(kindle\)](#)
- [Surgical Approaches to the Spine \(3rd edition\) book](#)
- [India Since Independence pdf, azw \(kindle\), epub](#)
  
- <http://www.uverp.it/library/Stinger.pdf>
- <http://diy-chirol.com/lib/Programming-Scala--Tackle-Multi-Core-Complexity-on-the-Java-Virtual-Machine--Pragmatic-Programmers-.pdf>
- <http://thewun.org/?library/When-Do-Fish-Sleep---An-Imponderables-Book.pdf>
- <http://test1.batsinbelfries.com/ebooks/How-Economics-Forgot-History--The-Problem-of-Historical-Specificity-in-Social-Science--Economics-as-Social-Theor>