

# CompTIA A+ 220-603 2006 Examination Objectives

## Introduction

In order to receive CompTIA A+ certification a candidate must pass two exams. The first exam is CompTIA A+ Essentials. Objectives for the CompTIA A+ Essentials examination are available for public review at [www.comptia.org](http://www.comptia.org).

The CompTIA A+ 220-603 examination is targeted for individuals who work or intend to work in a remote-based work environment where client interaction, client training, operating system and connectivity issues are emphasized. Job titles in some organizations which are descriptive of the role of this individual may be: Remote support technician, help desk technician, call center technician, specialist, representative, etc. Ideally, the CompTIA A+ 220-603 candidate has already passed the CompTIA A+ Essentials examination.

CompTIA recently convened a core of CompTIA A+ subject matter experts representing a diverse group of employers, educators and IT professionals which resulted in the revised CompTIA A+ examinations objectives. The skills and knowledge measured by these objectives were validated through a survey of more than 5,000 CompTIA A+ certified professionals and employers. The results of the survey were used in weighting the domains and ensuring that the weighting is representative of the relative importance of that content to the job requirements of an entry-level IT professional.

This examination blueprint includes domain weighting, test objectives, and example content. Example topics and concepts are included to clarify the test objectives and should not be construed as a comprehensive listing of all the content of this examination.

The table below lists the domains measured by this examination and the extent to which they are represented. CompTIA A+ 220-603 (2007 Edition) exams are based on these objectives.

Domain	Percentage of Examination
1.0 Personal Computer Components	15%
2.0 Operating Systems	29%
3.0 Printers and Scanners	10%
4.0 Networks	11%
5.0 Security	15%
6.0 Communication and Professionalism	20%
<b>Total</b>	<b>100%</b>

*CompTIA is constantly reviewing the content of our exams and updating test questions to be sure our exams are current and the security of the questions is protected. When necessary, we will publish updated exams based on existing exam objectives. Please know that all related exam preparation materials will still be valid.*

## 1.0 Personal Computer Components

### 1.1 Install, configure, optimize, and upgrade personal computer components

- Add, remove, and configure display devices, input devices and adapter cards including basic input and multimedia devices.

### 1.2 Identify tools, diagnostic procedures, and troubleshooting techniques for personal computer components

- Identify and apply basic diagnostic procedures and troubleshooting techniques, for example:
  - Identify and analyze the problem/potential problem
  - Test related components and evaluate results
  - Identify additional steps to be taken if/when necessary
  - Document activities and outcomes
- Recognize and isolate issues with display, peripheral, multimedia, specialty input device and storage.
- Apply steps in troubleshooting techniques to identify problems (e.g. physical environment, functionality and software/driver settings) with components including display, input devices and adapter cards

### 1.3 Perform preventive maintenance on personal computer components

- Identify and apply common preventive maintenance techniques for storage devices, for example:
  - Software tools (e.g., Disk Defragmenter, Check Disk)
  - Cleaning (e.g., optics, tape heads)

## 2.0 Operating Systems – unless otherwise noted, operating systems referred to within include Microsoft Windows 2000, XP Professional, XP Home and Media Center.

### 2.1 Identify the fundamental principles of using operating systems

- Use command-line functions and utilities to manage Windows 2000, XP Professional and XP Home, including proper syntax and switches, for example:
  - CMD
  - HELP
  - DIR
  - ATTRIB
  - EDIT
  - COPY
  - XCOPY
  - FORMAT
  - IPCONFIG
  - PING
  - MD / CD/ RD
- Identify concepts and procedures for creating, viewing, managing disks, directories and files in Windows 2000, XP Professional and XP Home, for example:
  - Disks (e.g. active, primary, extended and logical partitions)
  - File systems (e.g. FAT 32, NTFS)
  - Directory structures (e.g. create folders, navigate directory structures)
  - Files (e.g. creation, extensions, attributes, permissions)

- Locate and use Windows 2000, XP Professional and XP Home utilities and available switches
  - Disk Management Tools (e.g. DEFRAG, NTBACKUP, CHKDSK, Format)
  - System Management Tools
    - Device and Task Manager
    - MSCONFIG.EXE
    - REGEDIT.EXE
    - REGEDIT32.EXE
    - CMD
    - Event Viewer
    - System Restore
    - Remote Desktop
  - File Management Tool (e.g. Windows Explorer, ATTRIB.EXE)

## 2.2 Install, configure, optimize and upgrade operating systems

- Identify procedures and utilities used to optimize the performance of Windows 2000, XP Professional and XP Home, for example:
  - Virtual memory
  - Hard drives (e.g. disk defragmentation)
  - Temporary files
  - Services
  - Startup
  - Applications

## 2.3 Identify tools, diagnostic procedures and troubleshooting techniques for operating systems.

- Recognize and resolve common operational problems, for example:
  - Windows-specific printing problems (e.g. print spooler stalled, incorrect/incompatible driver form print)
  - Auto-restart errors
  - Bluescreen error
  - System lock-up
  - Device drivers failure (input/output devices)
  - Application install, start or load failure
- Recognize and resolve common error messages and codes, for example:
  - Boot (e.g. invalid boot disk, inaccessible boot device, missing NTLDR)
  - Startup (e.g. device/service has failed to start, device/program references in registry not found)
  - Event viewer
  - Registry
  - Windows reporting
- Use diagnostic utilities and tools to resolve operational problems, for example:
  - Bootable media
  - Startup Modes (e.g. safe mode, safe mode with command prompt or networking, step-by-step/single step mode)
  - Documentation resources (e.g. user/installation manuals, internet/web-based, training materials)
  - Task and Device Manager
  - Event Viewer
  - MSCONFIG command
  - Recovery CD / Recovery partition
  - Remote Desktop Connection and Assistance
  - System File Checker (SFC)

## 2.4 Perform preventive maintenance for operating systems

- Perform preventive maintenance on Windows 2000, XP Professional and XP Home including software and Windows updates (e.g. service packs)

## 3.0 Printers and Scanners

### 3.1 Identify the fundamental principles of using printers and scanners

- Describe processes used by printers and scanners including laser, ink dispersion, impact, solid ink and thermal printers.

### 3.2 Install, configure, optimize and upgrade printers and scanners

- Install and configure printers and scanners
  - Power and connect the device using network or local port
  - Install/update the device driver and calibrate the device
  - Configure options and default settings
  - Install and configure print drivers (e.g. PCL™, Postscript™ and GDI)
  - Validate compatibility with OS and applications
  - Educate user about basic functionality
- Optimize scanner performance for example: resolution, file format and default settings

### 3.3 Identify tools, diagnostic procedures and troubleshooting techniques for printers and scanners

- Gather information required to troubleshoot printer/scanner problems
- Troubleshoot a print failure (e.g. lack of paper, clear queue, restart print spooler, recycle power on printer, inspect for jams, check for visual indicators)

## 4.0 Networks

### 4.1 Identify the fundamental principles of networks

- Identify names, purposes, and characteristics of the basic network protocols and terminologies, for example:
  - ISP
  - TCP/IP (e.g. Gateway, Subnet mask, DNS, WINS, Static and automatic address assignment)
  - IPX/SPX (NWLink)
  - NETBEUI/NETBIOS
  - SMTP
  - IMAP
  - HTML
  - HTTP
  - HTTPS
  - SSL
  - Telnet
  - FTP
  - DNS
- Identify names, purposes, and characteristics of technologies for establishing connectivity, for example:
  - Dial-up networking
  - Broadband (e.g. DSL, cable, satellite)
  - ISDN Networking
  - Wireless
  - LAN/WAN

#### **4.2 Install, configure, optimize and upgrade networks**

- Establish network connectivity and share network resources

#### **4.3 Identify tools, diagnostic procedures and troubleshooting techniques for networks**

- Identify the names, purposes, and characteristics of command line tools, for example:
  - IPCONFIG.EXE
  - PING.EXE
  - TRACERT.EXE
  - NSLOOKUP.EXE
- Diagnose and troubleshoot basic network issues, for example:
  - Driver/network interface
  - Protocol configuration
    - TCP/IP (e.g. Gateway, Subnet mask, DNS, WINS, static and automatic address assignment)
    - IPX/SPX (NWLink)
  - Permissions
  - Firewall configuration
  - Electrical interference

## **5.0 Security**

#### **5.1 Identify the fundamental principles of security**

- Identify the names, purposes, and characteristics of access control and permissions
  - Accounts including user, admin and guest
  - Groups
  - Permission levels, types (e.g. file systems and shared) and actions (e.g. read, write, change and execute)

#### **5.2 Install, configure, optimize and upgrade security**

- Install and configure hardware, software, wireless and data security, for example:
  - Smart card readers
  - Key fobs
  - Biometric devices
  - Authentication technologies
  - Software firewalls
  - Auditing and event logging (enable/disable only)
  - Wireless client configuration
  - Unused wireless connections
  - Data access (e.g. permissions, security policies)
  - Encryption and encryption technologies

#### **5.3 Identify tools, diagnostic procedures and troubleshooting techniques for security issues**

- Diagnose and troubleshoot software and data security issues, for example:
  - Software firewall issues
  - Wireless client configuration issues
  - Data access issues (e.g. permissions, security policies)
  - Encryption and encryption technology issues

#### **5.4 Perform preventive maintenance for security**

- Recognize social engineering and address social engineering situations

## **6.0 Communication and Professionalism**

**6.1 Use good communication skills, including listening and tact / discretion, when communicating with customers and colleagues**

- Use clear, concise and direct statements
- Allow the customer to complete statements – avoid interrupting
- Clarify customer statements – ask pertinent questions
- Avoid using jargon, abbreviations and acronyms
- Listen to customers

**6.2 Use job-related professional behavior including notation of privacy, confidentiality and respect for the customer and customers' property**

- Behavior
  - Maintain a positive attitude and tone of voice
  - Avoid arguing with customers and / or becoming defensive
  - Do not minimize customers' problems
  - Avoid being judgmental and / or insulting or calling the customer names
  - Avoid distractions and / or interruptions when talking with customers
- Property
  - Telephone, laptop, desktop computer, printer, monitor, etc.