



CompTIA A+ Certification Exam Objectives

Exam Number: 220-801



Introduction

In order to receive CompTIA A+ certification a candidate must pass two exams. The first exam is CompTIA A+ 220-801 Certification Exam. The CompTIA A+ 220-801 examination measures necessary competencies for an entry-level IT professional with the equivalent knowledge of at least 12 months of hands-on experience in the lab or field. Successful candidates will have the knowledge required to assemble components based on customer requirements, install, configure and maintain devices, PCs and software for end users, understand the basics of networking and security/forensics, properly and safely diagnose, resolve and document common hardware and software issues while applying troubleshooting skills. Successful candidates will also provide appropriate customer support; understand the basics of virtualization, desktop imaging, and deployment.

CompTIA A+ is ISO 17024 Accredited (Personnel Certification Accreditation) and, as such, undergoes regular reviews and updates to the exam objectives. The following CompTIA A+ 220-801 exam objectives result from subject matter expert workshops and industry-wide survey results regarding the skills and knowledge required of an entry-level IT professional. The percentages in this document represent the relative importance of the subject areas (domains) in the associated body of knowledge, and together establish the foundation 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.

Candidates are encouraged to use this document to guide their studies. The table below lists the domains measured by this examination and the extent to which they are represented. The CompTIA A+ 220-801 exam is based on these objectives.

| Domain | Percentage of Examination |
|------------------------|---------------------------|
| PC Hardware | 40% |
| Networking | 27% |
| Laptops | 11% |
| Printers | 11% |
| Operational Procedures | 11% |
| | |
| Total | 100% |

****Note:** The lists of examples provided in bulleted format below each objective are not exhaustive lists. Other examples of technologies, processes or tasks pertaining to each objective may also be included on the exam although not listed or covered in this objectives document.

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 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
 - ITX
- 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
 - 5
 - 10
- Floppy drive
- Tape drive
- Media capacity
 - CD
 - CD-RW
 - DVD-RW
 - DVD
 - Blu-Ray
 - Tape
 - Floppy
 - DL DVD

1.6 Differentiate among various CPU types and features and select the appropriate cooling method.

- Socket types
 - Intel: LGA, 775, 1155, 1156, 1366
 - AMD: 940, AM2, AM2+, AM3, AM3+, FM1, F
- Characteristics
 - Speeds
 - Cores
 - Cache size/type
 - Hyperthreading
 - Virtualization support
 - Architecture (32-bit vs. 64-bit)
 - Integrated GPU
- Cooling
 - Heat sink
 - Fans
 - Thermal paste
 - Liquid-based

1.7 Compare and contrast various connection interfaces and explain their purpose.

- Physical connections
 - USB 1.1 vs. 2.0 vs. 3.0 speed and distance characteristics
 - Connector types: A, B, mini, micro
 - Firewire 400 vs. Firewire 800 speed and distance characteristics
 - SATA1 vs. SATA2 vs. SATA3, eSATA, IDE speeds
 - Other connector types
 - Serial
 - Parallel
 - VGA

- HDMI
 - DVI
 - Audio
 - RJ-45
 - RJ-11
 - Analog vs. digital transmission
 - VGA vs. HDMI
- Speeds, distances and frequencies of wireless device connections
 - Bluetooth
 - IR
 - RF

1.8 Install an appropriate power supply based on a given scenario.

- Connector types and their voltages
 - SATA
 - Molex
 - 4/8-pin 12v
 - PCIe 6/8-pin
 - 20-pin
 - 24-pin
 - Floppy
- Specifications
 - Wattage
 - Size
 - Number of connectors
 - ATX
 - Micro-ATX
- Dual voltage options

1.9 Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs.

- Graphic / CAD / CAM design workstation
 - Powerful processor
 - High-end video
 - Maximum RAM
- Audio/Video editing workstation
 - Specialized audio and video card
 - Large fast hard drive
 - Dual monitors
- Virtualization workstation
 - Maximum RAM and CPU cores
- Gaming PC
 - Powerful processor
 - High-end video/specialized GPU
 - Better sound card
 - High-end cooling
- Home Theater PC
 - Surround sound audio
 - HDMI output
 - HTPC compact form factor
 - TV tuner
- Standard thick client
 - Desktop applications
 - Meets recommended requirements for running Windows
- Thin client
 - Basic applications

- Meets minimum requirements for running Windows
- Home Server PC
 - Media streaming
 - File sharing
 - Print sharing
 - Gigabit NIC
 - RAID array

1.10 Given a scenario, evaluate types and features of display devices.

- Types
 - CRT
 - LCD
 - LED
 - Plasma
 - Projector
 - OLED
- Refresh rates
- Resolution
- Native resolution
- Brightness/lumens
- Analog vs. digital
- Privacy/antiglare filters
- Multiple displays

1.11 Identify connector types and associated cables.

- Display connector types
 - DVI-D
 - DVI-I
 - DVI-A
 - DisplayPort
 - RCA
 - HD15 (i.e. DE15 or DB15)
 - BNC
 - miniHDMI
 - RJ-45
 - miniDin-6
- Display cable types
 - HDMI
 - DVI
 - VGA
 - Component
 - Composite
 - S-video
 - RGB
 - Coaxial
 - Ethernet
- Device connectors and pin arrangements
 - SATA
 - eSATA
 - PATA
 - IDE
 - EIDE
 - Floppy
 - USB
 - IEEE1394
 - SCSI

- PS/2
- Parallel
- Serial
- Audio
- RJ-45
- Device cable types
 - SATA
 - eSATA
 - IDE
 - EIDE
 - Floppy
 - USB
 - IEEE1394
 - SCSI
 - 68pin vs. 50pin vs. 25pin
 - Parallel
 - Serial
 - Ethernet
 - Phone

1.12 Install and configure various peripheral devices.

- Input devices
 - Mouse
 - Keyboard
 - Touch screen
 - Scanner
 - Barcode reader
 - KVM
 - Microphone
 - Biometric devices
 - Game pads
 - Joysticks
 - Digitizer
- Multimedia devices
 - Digital cameras
 - Microphone
 - Webcam
 - Camcorder
 - MIDI enabled devices
- Output devices
 - Printers
 - Speakers
 - Display devices

2.0 Networking

2.1 Identify types of network cables and connectors.

- Fiber
 - Connectors: SC, ST and LC
- Twisted Pair
 - Connectors: RJ-11, RJ-45
 - Wiring standards: T568A, T568B
- Coaxial
 - Connectors: BNC, F-connector

2.2 Categorize characteristics of connectors and cabling.

- Fiber
 - Types (single-mode vs. multi-mode)
 - Speed and transmission limitations
- Twisted pair
 - Types: STP, UTP, CAT3, CAT5, CAT5e, CAT6, plenum, PVC
 - Speed and transmission limitations
- Coaxial
 - Types: RG-6, RG-59
 - Speed and transmission limitations

2.3 Explain properties and characteristics of TCP/IP.

- IP class
 - Class A
 - Class B
 - Class C
- IPv4 vs. IPv6
- Public vs. private vs. APIPA
- Static vs. dynamic
- Client-side DNS
- DHCP
- Subnet mask
- Gateway

2.4 Explain common TCP and UDP ports, protocols, and their purpose.

- Ports
 - 21 – FTP
 - 23 – TELNET
 - 25 – SMTP
 - 53 – DNS
 - 80 – HTTP
 - 110 – POP3
 - 143 – IMAP
 - 443 – HTTPS
 - 3389 – RDP
- Protocols
 - DHCP
 - DNS
 - LDAP
 - SNMP
 - SMB
 - SSH
 - SFTP
- TCP vs. UDP

2.5 Compare and contrast wireless networking standards and encryption types.

- Standards
 - 802.11 a/b/g/n
 - Speeds, distances and frequencies
- Encryption types
 - WEP, WPA, WPA2, TKIP, AES

2.6 Install, configure, and deploy a SOHO wireless/wired router using appropriate settings.

- MAC filtering
- Channels (1 – 11)
- Port forwarding, port triggering
- SSID broadcast (on/off)
- Wireless encryption

- Firewall
- DHCP (on/off)
- DMZ
- NAT
- WPS
- Basic QoS

2.7 Compare and contrast Internet connection types and features.

- Cable
- DSL
- Dial-up
- Fiber
- Satellite
- ISDN
- Cellular (mobile hotspot)
- Line of sight wireless internet service
- WiMAX

2.8 Identify various types of networks.

- LAN
- WAN
- PAN
- MAN
- Topologies
 - Mesh
 - Ring
 - Bus
 - Star
 - Hybrid

2.9 Compare and contrast network devices their functions and features.

- Hub
- Switch
 - PoE
- Router
- Access point
- Bridge
- Modem
- NAS
- Firewall
- VoIP phones
- Internet appliance

2.10 Given a scenario, use appropriate networking tools.

- Crimper
- Multimeter
- Toner probe
- Cable tester
- Loopback plug
- Punchdown tool

3.0 Laptops

3.1 Install and configure laptop hardware and components.

- Expansion options
 - Express card /34

- Express card /54
- PCMCIA
- SODIMM
- Flash
- Hardware/device replacement
 - Keyboard
 - Hard Drive (2.5 vs. 3.5)
 - Memory
 - Optical drive
 - Wireless card
 - Mini-PCIe
 - screen
 - DC jack
 - Battery
 - Touchpad
 - Plastics
 - Speaker
 - System board
 - CPU

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

- Types
 - LCD
 - LED
 - OLED
 - Plasma
- Wi-Fi antenna connector/placement
- Inverter and its function
- Backlight

3.3 Compare and contrast laptop features.

- Special function keys
 - Dual displays
 - Wireless (on/off)
 - Volume settings
 - Screen brightness
 - Bluetooth (on/off)
 - Keyboard backlight
- Docking station vs. port replicator
- Physical laptop lock and cable lock

4.0 Printers

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

- Laser
 - Imaging drum, fuser assembly, transfer belt, transfer roller, pickup rollers, separate pads, duplexing assembly
 - Imaging process: processing, charging, exposing, developing, transferring, fusing and cleaning
- Inkjet
 - Ink cartridge, print head, roller, feeder, duplexing assembly, carriage and belt
 - Calibration
- Thermal
 - Feed assembly, heating element
 - Special thermal paper

- Impact
 - Print head, ribbon, tractor feed
 - Impact paper
- 4.2 Given a scenario, install, and configure printers.**
 - Use appropriate printer drivers for a given operating system
 - Print device sharing
 - Wired
 - USB
 - Parallel
 - Serial
 - Ethernet
 - Wireless
 - Bluetooth
 - 802.11x
 - Infrared (IR)
 - Printer hardware print server
 - Printer sharing
 - Sharing local/networked printer via Operating System settings
- 4.3 Given a scenario, perform printer maintenance.**
 - Laser
 - Replacing toner, applying maintenance kit, calibration, cleaning
 - Thermal
 - Replace paper, clean heating element, remove debris
 - Impact
 - Replace ribbon, replace print head, replace paper

5.0 Operational Procedures

- 5.1 Given a scenario, use appropriate safety procedures.**
 - ESD straps
 - ESD mats
 - Self-grounding
 - Equipment grounding
 - Personal safety
 - Disconnect power before repairing PC
 - Remove jewelry
 - Lifting techniques
 - Weight limitations
 - Electrical fire safety
 - CRT safety – proper disposal
 - Cable management
 - Compliance with local government regulations
- 5.2 Explain environmental impacts and the purpose of environmental controls.**
 - MSDS documentation for handling and disposal
 - Temperature, humidity level awareness and proper ventilation
 - Power surges, brownouts, blackouts
 - Battery backup
 - Surge suppressor
 - Protection from airborne particles
 - Enclosures
 - Air filters
 - Dust and debris
 - Compressed air
 - Vacuums

- Component handling and protection
 - Antistatic bags
- Compliance to local government regulations
- 5.3 Given a scenario, demonstrate proper communication and professionalism.**
 - Use proper language – avoid jargon, acronyms, slang when applicable
 - Maintain a positive attitude
 - Listen and do not interrupt the customer
 - Be culturally sensitive
 - Be on time (if late contact the customer)
 - Avoid distractions
 - Personal calls
 - Talking to co-workers while interacting with customers
 - Personal interruptions
 - Dealing with difficult customer or situation
 - Avoid arguing with customers and/or being defensive
 - Do not minimize customer's problems
 - Avoid being judgmental
 - Clarify customer statements (ask open ended questions to narrow the scope of the problem, restate the issue or question to verify understanding)
 - Set and meet expectations/timeline and communicate status with the customer
 - Offer different repair/replacement options if applicable
 - Provide proper documentation on the services provided
 - Follow up with customer/user at a later date to verify satisfaction
 - Deal appropriately with customers confidential materials
 - Located on a computer, desktop, printer, etc
- 5.4 Explain the fundamentals of dealing with prohibited content/activity.**
 - First response
 - Identify
 - Report through proper channels
 - Data/device preservation
 - Use of documentation/documentation changes
 - Chain of custody
 - Tracking of evidence/documenting process

CompTIA A+ Acronyms

Introduction

The following is a list of acronyms which appear on the CompTIA A+ exams. Candidates are encouraged to review the complete list and attain a working knowledge of all listed acronyms as a part of a comprehensive exam preparation program.

| ACRONYM | SPELLED OUT |
|----------------|--|
| AC | alternating current |
| ACL | access control list |
| ACPI | advanced configuration power interface |
| ACT | activity |
| ADSL | asymmetrical digital subscriber line |
| AGP | accelerated graphics port |
| AMD | advanced micro devices |
| APIPA | automatic private internet protocol addressing |
| APM | advanced power management |
| ARP | address resolution protocol |
| ASR | automated system recovery |
| ATA | advanced technology attachment |
| ATAPI | advanced technology attachment packet interface |
| ATM | asynchronous transfer mode |
| ATX | advanced technology extended |
| A/V | Audio Video |
| BIOS | basic input/output system |
| BNC | Bayonet-Neill-Concelman or British Naval Connector |
| BTX | balanced technology extended |
| CAPTCHA | Completely Automated Public Turing Test To Tell Computers and Humans Apart |
| CCFL | Cold Cathode Fluorescent Lamp |
| CD | compact disc |
| CD-ROM | compact disc-read-only memory |
| CD-RW | compact disc-rewritable |
| CDFS | compact disc file system |
| CFS | Central File System, Common File System, Command File System |
| CMOS | complementary metal-oxide semiconductor |
| CNR | Communications and Networking Riser |
| COMx | communication port (x=port number) |

| | |
|-----------|---|
| CPU | central processing unit |
| CRIMM | Continuity Rambus Inline Memory Mode |
| CRT | cathode-ray tube |
| DAC | discretionary access control |
| DB-25 | serial communications D-shell connector, 25 pins |
| DB-9 | 9 pin D shell connector |
| DC | direct current |
| DDOS | distributed denial of service |
| DDR | double data-rate |
| DDR RAM | double data-rate random access memory |
| DDR SDRAM | double data-rate synchronous dynamic random access memory |
| DFS | distributed file system |
| DHCP | dynamic host configuration protocol |
| DIMM | dual inline memory module |
| DIN | Deutsche Industrie Norm |
| DIP | dual inline package |
| DLT | digital linear tape |
| DLP | digital light processing |
| DMA | direct memory access |
| DMZ | demilitarized zone |
| DNS | domain name service or domain name server |
| DOS | denial of service |
| DRAM | dynamic random access memory |
| DSL | digital subscriber line |
| DVD | digital video disc or digital versatile disc |
| DVD-RAM | digital video disc-random access memory |
| DVD-ROM | digital video disc-read only memory |
| DVD-R | digital video disc-recordable |
| DVD-RW | digital video disc-rewritable |
| DVI | digital visual interface |
| ECC | error correction code |
| ECP | extended capabilities port |
| EEPROM | electrically erasable programmable read-only memory |
| EFS | encrypting file system |
| EIDE | enhanced integrated drive electronics |
| EMI | electromagnetic interference |
| EMP | electromagnetic pulse |
| EPROM | erasable programmable read-only memory |
| EPP | enhanced parallel port |
| ERD | emergency repair disk |
| ESD | electrostatic discharge |
| EVGA | extended video graphics adapter/array |
| EVDO | evolution data optimized or evolution data only |
| FAT | file allocation table |

| | |
|----------|---|
| FAT12 | 12-bit file allocation table |
| FAT16 | 16-bit file allocation table |
| FAT32 | 32-bit file allocation table |
| FDD | floppy disk drive |
| Fn | Function (referring to the function key on a laptop) |
| FPM | fast page-mode |
| FRU | field replaceable unit |
| FSB | Front Side Bus |
| FTP | file transfer protocol |
| FQDN | fully qualified domain name |
| Gb | gigabit |
| GB | gigabyte |
| GDI | graphics device interface |
| GHz | gigahertz |
| GUI | graphical user interface |
| GPS | global positioning system |
| GSM | global system for mobile communications |
| HAL | hardware abstraction layer |
| HAV | Hardware Assisted Virtualization |
| HCL | hardware compatibility list |
| HDD | hard disk drive |
| HDMI | high definition media interface |
| HPFS | high performance file system |
| HTML | hypertext markup language |
| HTPC | Home theater PC |
| HTTP | hypertext transfer protocol |
| HTTPS | hypertext transfer protocol over secure sockets layer |
| I/O | input/output |
| ICMP | internet control message protocol |
| ICR | intelligent character recognition |
| IDE | integrated drive electronics |
| IDS | Intrusion Detection System |
| IEEE | Institute of Electrical and Electronics Engineers |
| IIS | Internet Information Services |
| IMAP | internet mail access protocol |
| IP | internet protocol |
| IPCONFIG | internet protocol configuration |
| IPP | internet printing protocol |
| IPSEC | internet protocol security |
| IR | infrared |
| IrDA | Infrared Data Association |
| IRQ | interrupt request |
| ISA | industry standard architecture |
| ISDN | integrated services digital network |

| | |
|-----------|---|
| ISO | Industry Standards Organization |
| ISP | internet service provider |
| JBOD | just a bunch of disks |
| Kb | kilobit |
| KB | Kilobyte or knowledge base |
| LAN | local area network |
| LBA | logical block addressing |
| LC | Lucent connector |
| LCD | liquid crystal display |
| LDAP | lightweight directory access protocol |
| LED | light emitting diode |
| Li-on | lithium-ion |
| LPD/LPR | line printer daemon / line printer remote |
| LPT | line printer terminal |
| LVD | low voltage differential |
| MAC | media access control / mandatory access control |
| MAPI | messaging application programming interface |
| MAU | media access unit, media attachment unit |
| Mb | megabit |
| MB | megabyte |
| MBR | master boot record |
| MBSA | Microsoft Baseline Security Analyzer |
| MFD | multi-function device |
| MFP | multi-function product |
| MHz | megahertz |
| MicroDIMM | micro dual inline memory module |
| MIDI | musical instrument digital interface |
| MIME | multipurpose internet mail extension |
| MIMO | Multiple Input Multiple Output |
| MMC | Microsoft management console |
| MMX | multimedia extensions |
| MP3 | Moving Picture Experts Group Layer 3 Audio |
| MP4 | Moving Picture Experts Group Layer 4 |
| MPEG | Moving Picture Experts Group |
| MSCONFIG | Microsoft configuration |
| MSDS | material safety data sheet |
| MUI | multilingual user interface |
| NAC | network access control |
| NAS | network-attached storage |
| NAT | network address translation |
| NetBIOS | networked basic input/output system |
| NetBEUI | networked basic input/output system extended user interface |
| NFS | network file system |
| NIC | network interface card |

| | |
|--------|---|
| NiCd | nickel cadmium |
| NiMH | nickel metal hydride |
| NLX | new low-profile extended |
| NNTP | network news transfer protocol |
| NTFS | new technology file system |
| NTLDR | new technology loader |
| NTP | Network Time Protocol |
| OCR | optical character recognition |
| OEM | original equipment manufacturer |
| OLED | Organic Light Emitting Diode |
| OS | operating system |
| PAN | personal area network |
| PATA | parallel advanced technology attachment |
| PC | personal computer |
| PCI | peripheral component interconnect |
| PCIe | peripheral component interconnect express |
| PCIX | peripheral component interconnect extended |
| PCL | printer control language |
| PCMCIA | Personal Computer Memory Card International Association |
| PDA | personal digital assistant |
| PGA | pin grid array |
| PGA2 | pin grid array 2 |
| PII | Personally Identifiable Information |
| PIN | personal identification number |
| PKI | public key infrastructure |
| PnP | plug and play |
| POP3 | post office protocol 3 |
| PoS | Point of Sale |
| POST | power-on self test |
| POTS | plain old telephone service |
| PPP | point-to-point protocol |
| PPTP | point-to-point tunneling protocol |
| PRI | primary rate interface |
| PROM | programmable read-only memory |
| PS/2 | personal system/2 connector |
| PSTN | public switched telephone network |
| PSU | power supply unit |
| PVC | permanent virtual circuit |
| PXE | preboot execution environment |
| QoS | quality of service |
| RAID | redundant array of independent (or inexpensive) discs |
| RAM | random access memory |
| RAS | remote access service |
| RDRAM | RAMBUS [®] dynamic random access memory |

| | |
|-------------------|---|
| RDP | Remote Desktop Protocol |
| RF | radio frequency |
| RFI | radio frequency interference |
| RGB | red green blue |
| RIMM | RAMBUS® inline memory module |
| RIP | routing information protocol |
| RIS | remote installation service |
| RISC | reduced instruction set computer |
| RJ | registered jack |
| RJ-11 | registered jack function 11 |
| RJ-45 | registered jack function 45 |
| RMA | returned materials authorization |
| ROM | read only memory |
| RS-232 or RS-232C | recommended standard 232 |
| RTC | real-time clock |
| SAN | storage area network |
| SAS | Serial Attached SCSI |
| SATA | serial advanced technology attachment |
| SC | subscription channel |
| SCP | secure copy protection |
| SCSI | small computer system interface |
| SCSI ID | small computer system interface identifier |
| SD card | secure digital card |
| SDRAM | synchronous dynamic random access memory |
| SEC | single edge connector |
| SFC | system file checker |
| SFF | Small Form Factor |
| SGRAM | synchronous graphics random access memory |
| SIMM | single inline memory module |
| SLI | scalable link interface or system level integration or scanline interleave mode |
| S.M.A.R.T. | self-monitoring, analysis, and reporting technology |
| SMB | server message block or small to midsize business |
| SMTP | simple mail transfer protocol |
| SNMP | simple network management protocol |
| SoDIMM | small outline dual inline memory module |
| SOHO | small office/home office |
| SP | service pack |
| SP1 | service pack 1 |
| SP2 | service pack 2 |
| SP3 | service pack 3 |
| SP4 | service pack 4 |
| SPDIF | Sony-Philips digital interface format |
| SPGA | staggered pin grid array |
| SRAM | static random access memory |

| | |
|-------------------------------|--|
| SSH | secure shell |
| SSID | service set identifier |
| SSL | secure sockets layer |
| ST | straight tip |
| STP | shielded twisted pair SVGA |
| super video graphics array | SXGA |
| super extended graphics array | TB |
| terabyte | |
| TCP | transmission control protocol |
| TCP/IP | transmission control protocol/internet protocol |
| TDR | time domain reflectometer |
| TFTP | trivial file transfer protocol |
| TKIP | Temporal Key Integrity Protocol |
| TPM | trusted platform module |
| UAC | user account control |
| UART | universal asynchronous receiver transmitter |
| UDF | user defined functions or universal disk format or universal data format |
| UDMA | ultra direct memory access |
| UDP | user datagram protocol |
| UNC | universal naming convention |
| UPS | uninterruptible power supply |
| URL | uniform resource locator |
| USB | universal serial bus |
| USMT | user state migration tool UTP |
| unshielded twisted pair | UXGA |
| extended graphics array | ultra |
| VESA | Video Electronics Standards Association |
| VFAT | virtual file allocation table |
| VGA | video graphics array |
| VM | Virtual Machine |
| VoIP | voice over internet protocol |
| VPN | virtual private network |
| VRAM | video random access memory |
| WAN | wide area network |
| WAP | wireless application protocol |
| WEP | wired equivalent privacy |
| WIFI | wireless fidelity |
| WINS | windows internet name service |
| WLAN | wireless local area network |
| WPA | wireless protected access |
| WUXGA | wide ultra extended graphics array |
| XGA | extended graphics array |
| ZIF | zero-insertion-force |
| ZIP | zigzag inline package |

A+ Proposed Hardware and Software List

** CompTIA has included this sample list of hardware and software to assist candidates as they prepare for the A+ exam. This list may also be helpful for training companies who wish to create a lab component to their training offering. The bulleted lists below each topic are a sample list and not exhaustive.

Equipment

- iPad tablet
- Android tablet
- Laptop
- Desktop
- Monitors
- SOHO Router/switch
- Access point
- Printer (laser/wireless)
- Power strips
- Surge suppressor
- UPS

Spare parts/hardware

- Motherboards
- RAM
- Hard drives
- Power supplies
- Video cards

Sounds cards
Network cards
Wireless NICs
Fans/cooling devices
CPUs
Connectors/cables
Adapters
Network cables/connectors
AC adapters
Optical drives
Jumpers/screws/stand-offs
Cases
Bulk cable
Maintenance kit

Tools

Screw drivers
Multimeter
Wire cutters
Punchdown tool
Crimper
Power supply tester
Cable stripper
POST cards
Standard technician toolkit
ESD strap

Software

Operating system disks (WinXP, Vista, Windows 7)
Antivirus software
Virtualization software
Anti-malware
Driver software
Anti-spyware

