



## CompTIA IT Fundamentals Certification Exam Objectives (FC0-U51)

### INTRODUCTION

The CompTIA IT Fundamentals Certification exam is designed to show that the successful candidate has the knowledge to identify and explain basic computer components, set up a basic workstation, conduct basic software installation, establish basic network connectivity, identify compatibility issues and identify/prevent basic security risks. Further this exam will assess the candidate's knowledge in the areas of safety and preventative maintenance of computers. This exam is intended for candidates who are users that are considering a career in IT and later considering the pursuit of a CompTIA A+ or similar certification.

Domain	% of Examination
1.0 Software	21%
2.0 Hardware	18%
3.0 Security	21%
4.0 Networking	16%
5.0 Basic IT literacy	24%
<b>Total</b>	<b>100%</b>

(A list of acronyms used in these objectives appears at the end of this document.)

**\*\*Note:** The bulleted lists below each objective are not exhaustive lists. Even though they are not included in this document, other examples of technologies, processes or tasks pertaining to each objective may also be included on the exam.

## 1.0 Software

### 1.1 Compare and contrast common Operating Systems and their functions and features

- Types
  - Mobile
    - Apple iOS
    - Android
    - Windows Phone
    - Blackberry
  - Workstation
    - Windows
    - Mac
    - Linux
    - Chrome OS
  - Open source vs. commercial
- Software compatibility for different OS types and versions
- Awareness of hardware compatibility for OS support
  - 32bit vs. 64bit operating systems
- Basic functions of an operating system
  - Interface between user and machine
  - Coordination of hardware components
  - Provides environment for software to function
  - Monitors system health and functionality
  - Displays structure / directories for data management

### 1.2 Identify common programs, applications and their purpose

- Types
  - Productivity Software
    - Word processing
    - Spreadsheet software
    - Email software
    - Basic database software
    - PDF viewers/creators
    - Presentation software
    - Desktop publishing software
    - Personal Information Manager
    - Remote desktop software
  - Collaboration Software
    - Online workspace
    - Document storage/sharing
    - Screen sharing software
    - Video conferencing software
    - Instant messaging software
    - Email software
  - Utility Software
    - Anti-malware
    - Software firewalls
    - Diagnostic/maintenance software
    - Compression software

- Specialized Software
  - CAD
  - Graphic design
  - Medical
  - Scientific
  - Financial
  - Gaming
  - Entertainment
- Open source vs. commercial
- Platforms
  - Mobile
  - Desktop
  - Web-based
- Common file types
  - Documents
    - txt
    - rtf
    - doc/docx
    - xls/xlsx
    - ppt/pptx
    - pdf
  - Audio
    - mp3
    - wav
    - flac
    - aac
    - m4a
  - Images
    - jpg
    - gif
    - tiff
    - png
    - bmp
  - Video
    - mpg
    - mp4
    - flv
    - wmv
    - avi
  - Executables
    - exe
    - msi
    - app
    - bat
    - scexe
  - Compression formats
    - rar
    - tar
    - zip
    - dmg
    - iso

- 7zip / 7z
- gzip / gz
- jar

### 1.3 Given a scenario, use software management best practices

- Install / uninstall
  - OS features
  - Applications
  - Drivers
- Patching / updates for OS, drivers, applications and security software
  - Scheduling
  - Frequency
  - Automatic updates
- Software version identification and compatibility
- Licensing
  - Product keys
  - Single / multi-license

### 1.4 Identify the following alternative technologies and their purpose

- Virtualization
  - Physical machine vs. virtual machine
- Cloud Computing
  - Streaming media (audio/video)
- Web applications
- VoIP
- Telepresence
- Gesture-based interaction
  - Swiping
  - Pinch-to-zoom
  - Kinetics

### 1.5 Explain the basic software features and functions of wireless devices

- Unlocking/security
- Bluetooth pairing
  - Hands free
  - Data transfer
- Wireless connection setup
  - Verify wireless capabilities
  - Turn on WiFi
  - Locate SSID
  - Enter wireless password (if applicable)
  - Verify internet connection
- Email configuration
  - POP3
  - IMAP
  - SMTP
- Screen orientation
- Synchronization configuration
- Airplane mode
- Stores for mobile applications

## 2.0 Hardware

### 2.1 Identify basic wired and wireless peripherals and their purpose

- Output devices
  - Printer
    - Laser
    - Inkjet
    - Thermal
  - Display devices
    - Flatscreen
    - CRT
    - Projector
  - Speakers
- Input devices
  - Keyboard
  - Pointing devices
    - Mouse
    - Touchpad
    - Joystick
    - Stylus pen
    - Trackball
  - Scanner
  - Microphone
  - Webcam
- Input & Output devices
  - Fax
  - External storage devices
    - Flash drive
    - External hard drive
    - CD/DVD/Blu-Ray
    - Network Attached Storage
    - Memory card
    - Mobile media players
    - Smart phone
  - Touchscreen display

### 2.2 Compare and contrast common computer connector types

- Video
  - VGA
  - DVI
  - HDMI
  - Display port/Thunderbolt
  - USB
  - S-video
  - Component - RGB
- FireWire
- eSATA
- Thunderbolt
- USB

- PS/2
- Parallel
- Serial
- RJ-45
- RJ-11
- Audio
- Power
  - AC/DC

### 2.3 Identify the purpose of internal computer components

- CPU
- Power Supply
- RAM
- Storage
  - Optical drive
  - Hard drive
  - Solid state drive
- Expansion cards
  - Video card
  - Audio card
  - Network card
  - Modem
- Motherboard/mainboard
- System cooling
  - Case fans
  - CPU fans
  - Liquid cooling

## 3.0 Security

### 3.1 Define basic security threats

- Malware
  - Virus
  - Trojan
  - Spyware
  - Ransomware
- Phishing
- Social engineering
- Spam
- Password cracking
- Physical security
  - Hardware theft
  - Software/license theft
  - Shoulder surfing
  - Dumpster diving

### 3.2 Given a scenario, use security best practices

- Password management
  - Password complexity

- Change default passwords
- Password confidentiality
- Password expiration
- Password reuse
- Awareness of Single Sign On
- Device hardening
  - Disable unused features
    - Disable Bluetooth
    - Disable NFC
  - Timeout / lock options
  - Enable security software/features
    - Software firewall
    - Anti-malware
  - Encryption options
- Open WiFi vs. secure WiFi
- Multifactor authentication
- Suspicious emails
  - Attachments
  - Hyperlinks
- Act on security software alerts
- Admin vs. user vs. guest account

### 3.3 Given a scenario, use web-browsing best practices

- Recognize a secure connection/website
  - https
  - lock symbol
- Recognize invalid certificate warnings
- Recognize suspicious links
- Recognize suspicious banner ads
- Recognize adware symptoms
  - Constant popups
  - Home page redirection
  - Search engine redirection
- Limit the use of personal information (PII)
- Update browsers and plugins
  - Avoid use of legacy browsers
- Disable unneeded/suspicious browser plugins, toolbars and extensions
- Disable autofill forms/passwords
- Clear browser cache/history/cookies
- Recognize untrusted source warnings
- Risks of using public workstations

## 4.0 Networking

### 4.1 Given a scenario, set up and configure a basic SOHO router (wired / wireless)

- Verify wired connection, if applicable
- Set WEP vs. WPA vs. WPA2
- Change SSID from default
- Apply a new wireless password
- Change admin password for router
- Connect to the new network
- Verify internet connectivity
- Update firmware if necessary

### 4.2 Compare and contrast cellular, wireless and wired data connections

- High vs. low mobility
- High vs. low availability
- High vs. low throughput/bandwidth
- High vs. low reliability
- Connection delay
- Number of concurrent connections
- Levels of security

### 4.3 Compare and contrast different methods of sharing and storage

- HTTP vs. HTTPS
  - Browser-based file downloads
- FTP vs. FTPS vs. SFTP (Secure File Transfer Protocol)
- Local vs. hosted storage
  - Cloud-based services
    - Cloud-based collaborative applications
    - Cloud-based storage
  - File and print sharing
    - Workgroup
    - Homegroup
  - Network drives
  - Network attached storage
  - Direct attached storage
  - External hard drives
- Peer-to-peer
  - Local adhoc network
    - Bluetooth sharing
  - Direct link (PC-to-PC)
  - Online peer-to-peer network
- Network vs. local printing
  - USB
  - Wireless / wired network



## 5.0 Basic IT literacy

### 5.1 Perform appropriate steps to set up a basic workstation

- Plug in cables
- Power on computer
- Follow initial operating system setup wizard
  - Localization settings
  - Screen resolution
  - Audio settings
- Install security software
- Configure peripherals (if applicable)
- Uninstall unneeded software (if applicable)
- Configure and verify internet connection
- Install additional software (if applicable)
- Run software and security updates
- Other user accounts (if applicable)
- Basic cable management

### 5.2 Explain the basic methods of navigating an operating system

- Executing programs
- Difference between shortcuts and files
- Manipulating files
  - Open
  - Edit
  - Save
  - Move
  - Copy
  - Cut
  - Paste
  - Delete
  - Rename
- Read-only vs. modifiable files
- Navigate a file structure
- Search, sort and display files
- Create screen captures
- Navigate with hot keys
- Folder and file size
- Accessibility options
- Folder and file permissions

### 5.3 Given a scenario, implement basic support concepts

- Check for external issues
  - Loose cables / connections
  - Power
  - Physical damage
- Manufacturer documentation
- Manufacturer websites
- Technical community groups

- Internet search engine
- Contact technical support

#### 5.4 Explain basic backup concepts

- Importance of backups
- Scheduling
- Frequency
- Storage mediums
  - Locally attached storage
  - Offsite/cloud-based
  - Network attached storage
- Backup verification and testing

#### 5.5 Describe the importance and impact of various environmental and safety concepts

- Proper disposal methods
  - RoHS
  - CRT monitors
  - Scanners
  - Batteries
  - Ink/toner
  - Hard drives
- Power
  - Energy efficient devices
  - Power profiles
    - Power options
    - Sleep / hibernation
  - UPS vs. surge protector vs. power strip
    - Power limitations
  - International power differences
- Device placement
  - Airflow
  - Humidity
  - Temperature
  - Dust accumulation
  - EMI
- Electrostatic discharge concepts
- Ergonomic concepts
  - Proper keyboard and mouse placement
  - Sitting positions
  - Monitor level placement
- Follow manufacturer safety guidelines

## CompTIA Strata Acronyms

### Introduction

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

<b>ACRONYM</b>	<b>SPELLED OUT</b>
AC	Alternating Current
BD-ROM	Blu-Ray Read Only Memory
BIOS	Basic Input/Output System
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CD	Compact Disc
CD-ROM	Compact Disc-Read-Only Memory
CD-RW	Compact Disc-Rewritable
CPU	Central Processing Unit
CRT	Cathode-Ray Tube
DC	Direct Current
DDR	Double Data-Rate
DDR RAM	Double Data-Rate Random Access Memory
DDR	Double Data-Rate Synchronous Dynamic Random Access
SDRAM	Memory
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual Inline Memory Module
DNS	Domain Name Services or Domain Name Server
DSL	Digital Subscriber Line
DVD	Digital Video Disc or Digital Versatile Disc
DVD-DL	Digital Video Disc or Digital Versatile Disc Dual Layer
DVD-R	Digital Video Disc-Recordable
DVD-RAM	Digital Video Disc-Random Access Memory
DVD-ROM	Digital Video Disc-Read Only Memory
DVD-RW	Digital Video Disc-Rewritable
DVI	Digital Visual Interface
EMI	Electromagnetic Interference
EMP	Electromagnetic Pulse
eSATA	External Serial Advanced Technology Attachment
ESD	Electrostatic Discharge
FAT	File Allocation Table
FAT32	32-bit File Allocation Table
FTP	File Transfer Protocol
FTPS	File Transfer Protocol over Secure Sockets Layer
Gb	Gigabit

GB	Gigabyte
GHz	Gigahertz
GPS	Global Positioning System
HDD	Hard Disk Drive
HDMI	High Definition Media Interface
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol over Secure Sockets Layer
IDE	Integrated Drive Electronics
IMAP	Internet Mail Access Protocol
IP	Internet Protocol
IR	Infrared
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
Kb	Kilobit
KB	Kilobyte or Knowledge Base
LAN	Local Area Network
MB	Megabyte
Mb	Megabit
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MP3	Moving Picture Experts Group Layer 3 Audio
MP4	Moving Picture Experts Group Layer 4
MPEG	Moving Picture Experts Group
NAS	Network Attached Storage
NFC	Near Field Communications
NIC	Network Interface Card
OEM	Original Equipment Manufacturer
OS	Operating System
PC	Personal Computer
PCI	Peripheral Component Interconnect
PCIe	Peripheral Component Interconnect Express
PCIX	Peripheral Component Interconnect Extended
PII	Personally Identifiable Information
POP	Post Office Protocol
POP3	Post Office Protocol 3
POTS	Plain Old Telephone System
PSU	Power Supply Unit
PS/2	Personal System 2
RAM	Random Access Memory
RGB	Red-Green-Blue
RJ	Registered Jack
RJ-11	Registered Jack Function 11

RJ-45	Registered Jack Function 45
RoHS	Recycling of Hazardous Substances
SATA	Serial Advanced Technology Attachment
SD card	Secure Digital Card
SFTP	Secure File Transfer Protocol
SID	System Identifier
SMTP	Simple Mail Transfer Protocol
SOHO	Small Office / Home Office
SSD	Solid State Drive
SSID	Service Set Identifier
SSL	Secure Sockets Layer
TB	Terabyte
TCP	Transmission Control Protocol
TCP/IP	Transmission Control Protocol / Internet Protocol
UPS	Uninterruptable Power Supply
URL	Uniform Resource Locator
USB	Universal Serial Bus
VGA	Video Graphics Array
VoIP	Voice over Internet Protocol
VTC	Video Teleconference
WAN	Wide Area Network
WAP	Wireless Application Protocol
WEP	Wired Equivalency Privacy
WIFI	Wireless Fidelity
WiMAX	Worldwide Interoperability for Microwave Access, Inc.
WLAN	Wireless Local Area Network
WPA	Wireless Protected Access
WPA2	Wireless Protected Access 2
WPS	Wireless Protected Setup

Version 1.0

## **Suggested Classroom Equipment to have for IT Fundamentals Certification Training**

### Equipment

- Workstations – unpackaged workstations
- Unconfigured OS images
- Wireless router
- Workstation with virtualization software
- Laptop
- Basic printer
- External storage devices
- Tablet/smart phone
- Power strip/UPS

### Spare parts/hardware

- Blank CDs/DVDs (for backup)
- Various cable types

### Tools

- ESD wrist band (for demonstration)

### Software

- Operating system media
- Anti-malware software
- Productivity software
- Browser software
- Backup software

### Other

- N/A