



# CompTIA Tech+ Certification Exam Objectives

**EXAM NUMBER: FC0-U71**



# About the Exam

The CompTIA Tech+ exam will certify the successful candidate has the knowledge and skills required to identify and explain the basics of computing, IT infrastructure, applications, software development, database use, and security concepts. In addition, candidates will demonstrate the knowledge to install peripherals and configure web browsers and wireless networks. Further, this exam will assess the candidate's knowledge in the areas of troubleshooting theory and identification of basic security risks. This exam is designed as a pre-professional certification for candidates who are advanced end users and possibly pursuing professional-level certifications, such as A+ (and beyond) in the future.

## **EXAM DEVELOPMENT**

CompTIA exams result from subject matter expert workshops and industry-wide survey results regarding the skills and knowledge required of an IT professional.

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## **PLEASE NOTE**

The lists of examples provided in bulleted format 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.

## TEST DETAILS

|                        |   |
|------------------------|---|
| Required exam          | FC0-U71                                       |
| Number of questions    |   |
| Types of questions     | Multiple-choice                               |
| Length of test         |   |
| Recommended experience | High school students or non-IT professionals. |
| Passing Score          |   |

## EXAM OBJECTIVES (DOMAINS)

The table below lists the domains measured by this examination and the extent to which they are represented.

| DOMAIN       |                                | PERCENTAGE OF EXAMINATION |
|--------------|--------------------------------|---------------------------|
| 1.0          | IT Concepts and Terminology    | 13%                       |
| 2.0          | Infrastructure                 | 24%                       |
| 3.0          | Applications and Software      | 18%                       |
| 4.0          | Software Development Concepts  | 13%                       |
| 5.0          | Data and Database Fundamentals | 13%                       |
| 6.0          | Security                       | 19%                       |
| <b>Total</b> |                                | <b>100%</b>               |



# 1.0 IT Concepts and Terminology

## 1.1 Explain the basics of computing.

- Input
- Processing
- Output
- Storage

## 1.2 Identify notational systems.

- Binary
- Hexadecimal
- Decimal
- Octal

## 1.3 Compare and contrast common units of measure.

- **Storage unit**
  - Bit
  - Byte
  - Kilobyte (KB)
  - Megabyte (MB)
  - Gigabyte (GB)
  - Terabyte (TB)
  - Petabyte (PB)
- **Throughput unit**
  - Bits per second (bps)
  - Kilobits per second (Kbps)
  - Megabits per second (Mbps)
  - Gigabits per second (Gbps)
  - Terabytes per second (Tbps)
- **Processing speed**
  - Megahertz (MHz)
  - Gigahertz (GHz)

## 1.4 Explain the troubleshooting methodology.

- Identify the problem.
- Establish a theory of probable cause (question the obvious).
  - Research knowledge base/internet, if applicable.
- Test the theory to determine the cause.
- Establish a plan of action to resolve the problem and implement the solution.
- Verify full system functionality and, if applicable, implement preventive measures.
- Document findings/lessons learned, actions, and outcomes.



## 2.0 Infrastructure

### 2.1 Explain common computing devices and their purposes.

- Smartphones
- Tablets
- E-readers
- Laptops
- Workstations
- Servers
- Gaming consoles
- Virtual reality systems
- Augmented reality systems
- Internet of Things (IoT)
  - Home appliances
  - Home automation devices
  - Thermostats
  - Security systems
  - Home assistants
  - Deadbolts/door locks
  - Video doorbells
- Vehicles
- Internet Protocol (IP)/security cameras
- Streaming media devices
- Medical devices
- Exercise equipment
- Wearable devices

### 2.2 Explain the purpose of common internal computing components.

- Motherboard/system board
- Firmware/basic input/output system (BIOS)
- Random-access memory (RAM)
- Central processing unit (CPU)
- Graphics processing unit (GPU)
- Storage
- Network interface card (NIC)
  - Wired vs. wireless
  - Onboard vs. expansion card

### 2.3 Compare and contrast storage types.

- Volatile vs. non-volatile
- Local storage
  - RAM
  - Read-only memory (ROM)
  - Storage drive
    - Magnetic disks/hard disk drive (HDD)
    - Solid-state drive (SSD)
    - Non-volatile memory express (NVMe)
- Optical
- External flash drives
- Local network storage
  - Network-attached storage (NAS)
  - File server
  - Cloud storage service

### 2.4 Given a scenario, install and configure common peripheral devices.

- Devices
  - Printer
  - Scanner
  - Keyboard
  - Mouse
  - Web camera
  - External drive
  - Speakers/headset
  - Display
  - Smart TV
  - Projector
  - Monitor
- Uninterruptable power supply (UPS)
- Installation types
  - Plug-n-play vs. driver installation
  - Other required steps
  - IP-based peripherals
  - Web-based configuration steps



## 2.5 Compare and contrast common types of input/output device interfaces.

- **Networking**
  - Wired
    - Ethernet connector (RJ45)
    - Fiber connector small form-factor pluggable (SFP)
  - Wireless
    - Bluetooth
    - Near-field communication (NFC)
    - 802.11X
  - Networking devices and tools
    - Crimpers
    - Cable testers
- **Peripheral devices**
  - USB (A/B/C)
  - Thunderbolt
  - Bluetooth
  - Radio frequency (RF)
  - Lightning
- **Display ports**
  - Video Graphics Array (VGA)
  - Digital Visual Interface (DVI)
  - High Definition Media Interface (HDMI)
  - DisplayPort
  - USB-C
- **Display technology**
  - Mirroring
  - Casting

## 2.6 Compare and contrast virtualization and cloud technologies.

- **Virtualization**
  - Hypervisor
  - Guest operating system (OS)
- **Cloud concepts**
  - Platform as a Service (PaaS)
  - Infrastructure as a Service (IaaS)
  - Software as a Service (SaaS)
- **Deployment models**
  - On premises
  - Cloud
  - Hybrid

## 2.7 Compare and contrast common internet service types.

- **Fiber optic**
- **Cable**
- **Digital subscriber line (DSL)**
- **Wireless**
  - RF
  - Satellite
  - Cellular

## 2.8 Identify basic networking concepts.

- **Basics of network communication**
- **Network identifiers**
  - IP address
  - Media access control (MAC) address
  - Ports
- **Basic network services**
  - Secure web browsing
  - File transfer
  - Email
- **Networking devices**
  - Modem
  - Router
  - Switch
  - Access point
  - Firewall
- **Networking models**
  - Client/server
  - Peer-to-peer
- **Local area network (LAN)**
- **Wide area network (WAN)**

## 2.9 Explain the basic capabilities of a small wireless network.

- **802.11n/ac/ax**
  - Speed considerations
  - Interference and attenuation factors
- **Older vs. newer standards**
- **Band options**
  - 2.4GHz
  - 5GHz
  - 6GHz



## 3.0 Applications and Software

### 3.1 Identify components of an OS.

- **Filesystem characteristics**
  - Compression
  - Encryption
  - Types and extensions
- **File management**
  - Folders/directories
- **Permissions**
  - Naming restrictions
- **System applications and utilities**
- **Services**
- **Processes**
- **Drivers**
- **Interfaces**
  - Console/command line
  - Graphical user interface (GUI)
  - File attributes and properties

### 3.2 Explain the purpose of operating systems.

- **Interface between applications and hardware**
- **Disk management**
- **Task and process management**
- **Application management**
- **Device management**
- **Access control**
- **OS types**
  - Mobile device
  - Desktop/workstation
  - Server
  - Embedded

### 3.3 Explain the purpose and proper use of software.

- **Productivity software**
  - Word processing
  - Spreadsheet
  - Presentation
  - Visual diagramming
- **Collaboration software**
  - Email client
  - Conferencing
  - Online workspace
  - Document sharing
- **Instant messaging software**
- **Web-browsing software**
- **Remote support software**

### 3.4 Given a scenario, configure and use web browser features.

- **Private browsing**
- **Browser add-ons/extensions**
  - Add
  - Remove
  - Enable/disable
- **Caching/clearing cache**
- **Pop-up blockers**
- **Compatible browser for application(s)**
- **Profile synchronization**
- **Organizing features**
  - Bookmarks
- **Default search engine**
- **Password management**
- **Accessibility**
- **Appearance**

### 3.5 Identify common uses of artificial intelligence (AI).

- **AI chatbots**
- **AI assistants**
- **Generative AI**
  - AI-generated code
  - AI-generated content
- **AI predictions and suggestions**



## 4.0 Software Development Concepts

### 4.1 Compare and contrast programming language categories.

- **Interpreted**
  - Scripting languages
  - Markup languages
- **Compiled programming languages**
- **Query languages**
  - Assembly languages

### 4.2 Identify fundamental data types and their characteristics.

- **Char**
- **Strings**
- **Numbers**
  - Integers
  - Floats
- **Boolean**

### 4.3 Explain the purpose and use of programming concepts.

- **Identifiers**
  - Variables
  - Constants
- **Arrays**
- **Functions**
- **Objects**
  - Properties
  - Attributes
  - Methods

### 4.4 Identify programming organizational techniques and logic concepts.

- **Organizational techniques**
  - Pseudo code concepts
  - Object-oriented methods
  - Comments and documentation
  - Flow chart concepts
    - Sequence
- **Logic concepts**
  - Branching
  - Looping





# 5.0 Data and Database Fundamentals

## 5.1 Explain the value of data and information.

- **Data and information as an asset**
  - Critical vs. non-critical data
- **Data-driven business decisions**
  - Data capture and collection
  - Data correlation
- Meaningful reporting
- **Data monetization**
- **Data analytics**
- **Big Data**

## 5.2 Explain database concepts and the purpose of a database.

- **Database uses**
  - Create
  - Import/input
  - Query
  - Reports
- **Flat file vs. database**
  - Multiple concurrent users
  - Scalability
- Speed
- Variety of data
- **Database records**
- **Storage**
  - Data persistence
- **Data availability**
  - Cloud vs. local
  - Online vs. offline

## 5.3 Compare and contrast various database structures.

- **Structured vs. semistructured vs. non-structured**
- **Relational databases**
  - Schema
  - Tables
    - Rows/records
    - Fields/columns
      - (i) Primary key
      - (ii) Foreign key
    - Constraints
- **Non-relational databases**
  - Key/value databases
  - Document databases

## 5.4 Explain basic data backup concepts.

- **Data**
  - File backups
  - System backups Restoring data
- **Location**
  - Stored locally
    - Flash drive
    - External hard drive
    - Secure digital (SD) card
  - Cloud storage



## 6.0 Security

### 6.1 Explain fundamental security concepts and frameworks.

- Confidentiality, integrity, and availability
- Privacy
  - Social networking sites
  - Email
  - File sharing
  - Instant messaging
  - Personally identifiable information (PII)
  - Government regulations (e.g., General Data Protection Regulations [GDPR])
  - Cookie consent
- Authentication, authorization, accounting, and non-repudiation concepts
  - Authentication
    - Single factor
    - Multifactor
    - Single sign-on
  - Authorization
    - Permissions
      - (i) Administrator vs. user accounts
    - Least privilege model
  - Accounting
    - Logs
    - Location tracking
    - Web browser history

### 6.2 Explain methods to secure devices and security best practices.

- Security awareness
  - Social engineering
    - Phishing
  - Malicious or compromised content
- Securing devices (mobile/workstation)
  - Authentication
  - Anti-malware
  - Firewall
  - Patching/updating
  - Physical device security
    - Cable locks
    - USB locks
- Device use best practices
  - Licensing
    - Open source vs. proprietary
    - Subscription vs. one-time purchase vs. perpetual
    - Product keys and serial numbers
  - Software sources
    - Researching and validating legitimate sources
    - Original equipment manufacturer (OEM) websites vs. third-party websites
    - Application stores
  - Removal of software
    - Unwanted
    - Unnecessary
    - Malicious
- Software piracy
- Safe browsing practices
  - Certificates
    - Valid
- Invalid
- Privacy considerations
  - Social networking sites
  - Email
  - File sharing
  - Instant messaging
  - AI

### 6.3 Explain password best practices.

- Password length
- Password complexity
- Password history
- Password expiration
- Password reuse across sites
- Password managers
- Password privacy
- Password reset process
- Changing default usernames and passwords
- Enabling passwords

### 6.4 Identify common use cases for encryption.

- Plain text vs. cipher text
- Data at rest
  - File level
  - Disk level
  - Mobile device
- Data in transit
  - Email
  - HTTPS
  - VPN
  - Mobile application



## 6.5 Given a scenario, configure security settings for a small wireless network.

- Changing the service set identifier (SSID)
- Changing the default password
- Encrypted vs. unencrypted
  - Open
  - Pre-shared key
  - Wireless Protected Access (WPA)
  - Wireless Protected Access 2 (WPA2)
  - Wireless Protected Access 3 (WPA3)

# CompTIA Tech+ FC0-U71 Acronym List

The following is a list of acronyms that appears on the CompTIA Tech+ FC0-U71 exam. Candidates are encouraged to review the complete list and attain a working knowledge of all listed acronyms as part of a comprehensive exam preparation program.

| <b>Acronym</b> | <b>Spelled Out</b>  | <b>Acronym</b> | <b>Spelled Out</b>                                    |
|----------------|---|----------------|---|
| AI             | Artificial Intelligence                                   | HTML           | Hypertext Markup Language                             |
| ARM            | Advanced RISC Machines                                    | HTTP           | Hypertext Transfer Protocol                           |
| BD-ROM         | Blu-ray Disc Read-only Memory                             | HTTPS          | Hypertext Transfer Protocol over Secure Sockets Layer |
| BIOS           | Basic Input/Output System                                 | IaaS           | Infrastructure as a Service                           |
| BPS            | Bits Per Second   | IDE            | Integrated Development Environment                    |
| CAD            | Computer-aided Design                                     | IMAP           | Internet Mail Access Protocol                         |
| CAM            | Computer-aided Manufacturing                              | IMAPS          | Internet Mail Access Protocol Secure                  |
| CAN            | Controller Area Network                                   | IoT            | Internet of Things                                    |
| CD             | Compact Disc  | IP             | Internet Protocol                                     |
| CD-ROM         | Compact Disc-Read-only Memory                             | IR             | Infrared  |
| CD-RW          | Compact Disc-Rewritable                                   | ISP            | Internet Service Provider                             |
| CLI            | Command-line Interface                                    | Kb             | Kilobit   |
| CPU            | Central Processing Unit                                   | KB             | Kilobyte  |
| DaaS           | Desktop as a Service                                      | Kbps           | Kilobit per second                                    |
| DDR            | Double Data Rate  | LAN            | Local Area Network                                    |
| DHCP           | Dynamic Host Configuration Protocol                       | LTE            | Long-term Evolution                                   |
| DIMM           | Dual Inline Memory Module                                 | MAC            | Media Access Control                                  |
| DNS            | Domain Name System  | MAN            | Metropolitan Area Network                             |
| DSL            | Digital Subscriber Line                                   | MB             | Megabyte  |
| DVD            | Digital Video Disc  | Mb             | Megabit   |
| DVD-R          | Digital Video Disc-Recordable                             | Mbps           | Megabit per second                                    |
| DVD-RW         | Digital Video Disc-Rewritable                             | MHz            | Megahertz   |
| DVI            | Digital Visual Interface                                  | MP3            | Moving Picture Experts Group Layer-3 Audio            |
| EMI            | Electromagnetic Interference                              | MP4            | Moving Picture Experts Group Layer-4                  |
| eSATA          | External Serial Advanced Technology Attachment            | NAS            | Network Attached Storage                              |
| ESD            | Electrostatic Discharge                                   | NAT            | Network Address Translation                           |
| EULA           | End User License Agreement                                | NFC            | Near Field Communications                             |
| FTP            | File Transfer Protocol                                    | NIC            | Network Interface Card                                |
| FTPS           | File Transfer Protocol over Secure File Transfer Protocol | NvME           | Non-volatile Memory Express                           |
| Gb             | Gigabit   | OEM            | Original Equipment Manufacturer                       |
| GB             | Gigabyte  | OS             | Operating System                                      |
| Gbps           | Gigabit per second  | PaaS           | Platform as a Service                                 |
| GDPR           | General Data Protection Regulations                       | PAN            | Personal Area Network                                 |
| GHz            | Gigahertz   | PB             | Petabyte  |
| GPS            | Global Positioning System                                 | PC             | Personal Computer                                     |
| GPU            | Graphics Processing Unit                                  | PCI            | Peripheral Component Interconnect                     |
| GUI            | Graphical User Interface                                  | PCIe           | Peripheral Component Interconnect Express             |
| HDD            | Hard Disk Drive   | PHI            | Personal Health Information                           |
| HDMI           | High-definition Multimedia Interface                      | PII            | Personally Identifiable Information                   |

| <b>Acronym</b> | <b>Spelled Out</b>                              |
|----------------|---|
| PIN            | Personal Identification Number                  |
| POP            | Post Office Protocol                            |
| POP3           | Post Office Protocol 3                          |
| POP3S          | Post Office Protocol 3 Secure                   |
| PSU            | Power Supply Unit                               |
| RAM            | Random-access Memory                            |
| RISC           | Reduced Instruction Set Computer                |
| RF             | Radio Frequency                                 |
| RJ             | Registered Jack                                 |
| RJ11           | Registered Jack Function 11                     |
| RJ45           | Registered Jack Function 45                     |
| ROM            | Read-only Memory                                |
| SaaS           | Software as a Service                           |
| SATA           | Serial Advanced Technology Attachment           |
| SD card        | Secure Digital Card                             |
| SFP            | Small Form-factor Pluggable                     |
| SFTP           | Secure File Transfer Protocol                   |
| SID            | System Identifier                               |
| SMTP           | Simple Mail Transfer Protocol                   |
| SMTPS          | Simple Mail Transfer Protocol Secure            |
| SNMP           | Single Network Management Protocol              |
| SSD            | Solid State Drive                               |
| SSH            | Secure Shell                                    |
| SSID           | Service Set Identifier                          |
| SSL            | Secure Sockets Layer                            |
| TB             | Terabyte  |
| Tbps           | Terabyte per second                             |
| TCP            | Transmission Control Protocol                   |
| TCP/IP         | Transmission Control Protocol/Internet Protocol |
| UPS            | Uninterruptable Power Supply                    |
| URL            | Uniform Resource Locator                        |
| USB            | Universal Serial Bus                            |
| USB-A          | Universal Serial Bus-A                          |
| USB-C          | Universal Serial Bus-C                          |
| vCPU           | Virtual Central Processing Unit                 |
| VGA            | Video Graphics Array                            |
| vHDD           | Virtual Hard Disk Drive                         |
| vNIC           | Virtual Network Interface Card                  |
| VoIP           | Voice over Internet Protocol                    |
| VPN            | Virtual Private Network                         |
| VR             | Virtual Reality                                 |
| vRAM           | Virtual Random-access Memory                    |
| WAN            | Wide Area Network                               |
| WEP            | Wired Equivalency Privacy                       |
| WLAN           | Wireless Local Area Network                     |
| WPA            | Wireless Protected Access                       |
| WPA2           | Wireless Protected Access 2                     |
| WPA3           | Wireless Protected Access 3                     |
| WPAN           | Wireless Personal Area Network                  |

# CompTIA Tech+ FC0-U71 Hardware and Software List

CompTIA has included this sample list of hardware and software to assist candidates as they prepare for the Tech+ FC0-U71 certification exam. This list may also be helpful for training companies that wish to create a lab component for their training offering. The bulleted lists below each topic are sample lists and are not exhaustive.

## Equipment

- Workstations
- Laptop
- Home wireless router
- Modem for internet service (WAN connection)
- Basic printer
- External storage devices
  - Hard drive
  - Solid state drive
- Tablet/smartphone
- Surge protector/UPS
- Physical networking devices
  - Switch (unmanaged)
- Wireless headphones
- Casting devices
- Smart TV/monitor
- Webcams/IP cameras
- Speakers

## Spare parts/hardware

- Flash drive (for backup)
- Various cable types
- Keyboards
- Computer mice

## Tools

- Electrostatic discharge (ESD) wristband (for demonstration)
- Internet connectivity
- Crimper
- Cable tester

## Software

- OS media
  - Windows
  - Linux
- Unconfigured OS images
- Anti-malware software
- Productivity software (local vs. cloud)
- Collaboration software
- Videoconferencing software
- Browser software
- Backup software
- Database software
- Software development packages (Integrated development environment [IDE])
- Cloud accounts for demonstration purposes: virtual central processing unit (vCPU), virtual random-access memory (vRAM), etc.
- Virtualization software