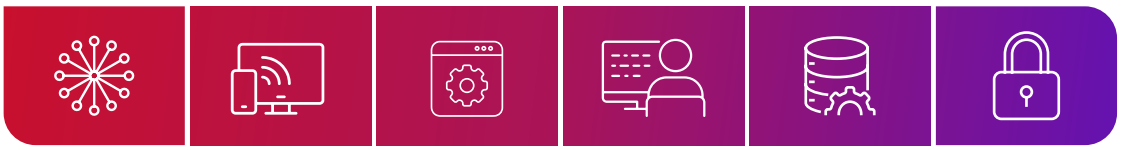
CompTIA Tech+ Certification Exam Objectives

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	Maximum of 70
Types of questions	Multiple-choice
Length of test	60 minutes
Recommended experience	High school students or non-IT professionals
Passing Score	650

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%
Total		**100%**

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.

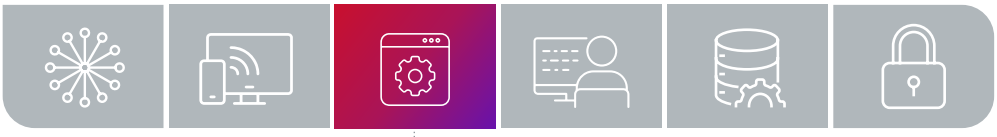
- Fiber optic
- Cable
- Digital subscriber line (DSL)
- Wireless
  - RF
  - Satellite
  - Cellular

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
      - Primary key
      - 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
      - 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.

ACRONYM	DEFINITION
AI	Artificial Intelligence
ARM	Advanced RISC Machines
BD-ROM	Blu-ray Disc Read-only Memory
BIOS	Basic Input/Output System
BPS	Bits Per Second
CAD	Computer-aided Design
CAM	Computer-aided Manufacturing
CAN	Controller Area Network
CD	Compact Disc
CD-ROM	Compact Disc-Read-only Memory
CD-RW	Compact Disc-Rewritable
CLI	Command-line Interface
CPU	Central Processing Unit
DaaS	Desktop as a Service
DDR	Double Data Rate
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual Inline Memory Module
DNS	Domain Name System
DSL	Digital Subscriber Line
DVD	Digital Video Disc
DVD-R	Digital Video Disc-Recordable
DVD-RW	Digital Video Disc-Rewritable
DVI	Digital Visual Interface
EMI	Electromagnetic Interference
eSATA	External Serial Advanced Technology Attachment
ESD	Electrostatic Discharge
EULA	End User License Agreement
FTP	File Transfer Protocol
FTPS	File Transfer Protocol over Secure File Transfer Protocol
Gb	Gigabit
GB	Gigabyte
Gbps	Gigabit per second
GDPR	General Data Protection Regulations
GHz	Gigahertz
GPS	Global Positioning System
GPU	Graphics Processing Unit
GUI	Graphical User Interface
HDD	Hard Disk Drive
HDMI	High-definition Multimedia Interface
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol over Secure Sockets Layer

ACRONYM	DEFINITION
IaaS	Infrastructure as a Service
IDE	Integrated Development Environment
IMAP	Internet Mail Access Protocol
IMAPS	Internet Mail Access Protocol Secure
IoT	Internet of Things
IP	Internet Protocol
IR	Infrared
ISP	Internet Service Provider
Kb	Kilobit
KB	Kilobyte
Kbps	Kilobit per second
LAN	Local Area Network
LTE	Long-term Evolution
MAC	Media Access Control
MAN	Metropolitan Area Network
MB	Megabyte
Mb	Megabit
Mbps	Megabit per second
MHz	Megahertz
MP3	Moving Picture Experts Group Layer-3 Audio
MP4	Moving Picture Experts Group Layer-4
NAS	Network Attached Storage
NAT	Network Address Translation
NFC	Near Field Communications
NIC	Network Interface Card
NvME	Non-volatile Memory Express
OEM	Original Equipment Manufacturer
OS	Operating System
PaaS	Platform as a Service
PAN	Personal Area Network
PB	Petabyte
PC	Personal Computer
PCI	Peripheral Component Interconnect
PCIe	Peripheral Component Interconnect Express
PHI	Personal Health Information
PII	Personally Identifiable Information
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

ACRONYM	DEFINITION
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

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