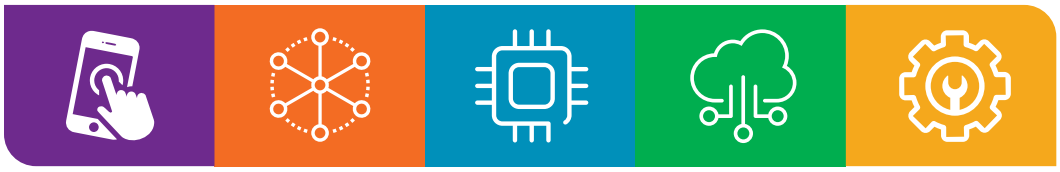
CompTI + Certification Exam Core 1 Objectives

EX M NUMBER: CORE 1 (220-1101)



CompTIA

bout the Exam

Candidates are encouraged to use this document to help prepare for the CompTI + Core 1 (220-1101) certification exam. In order to receive the CompTI + certification, you must pass two exams: Core 1 (220-1101) and Core 2 (220-1102). The CompTI + Core 1 (220-1101) and Core 2 (220-1102) certification exams will verify the successful candidate has the knowledge and skills required to:

- Install, configure, and maintain computer equipment, mobile devices, and software for end users
- Service components based on customer requirements
- Understand networking basics and apply basic cybersecurity methods to mitigate threats
- Properly and safely diagnose, resolve, and document common hardware and software issues
- pply troubleshooting skills and provide customer support using appropriate communication skills
- Understand the basics of scripting, cloud technologies, virtualization, and multi-OS deployments in corporate environments

This is equivalent to 12 months of hands-on experience working in a help desk support technician, desktop support technician, or field service technician job role. These content examples are meant to clarify the test objectives and should not be construed as a comprehensive listing of all the content of this examination.

EX M CCREDIT TION

The CompTI + Core 1 (220-1101) exam is accredited by NSI to show compliance with the ISO 17024 standard and, as such, undergoes regular reviews and updates to the exam objectives.

EX M DEVELOPMENT

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

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PLE SE 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. CompTI 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.

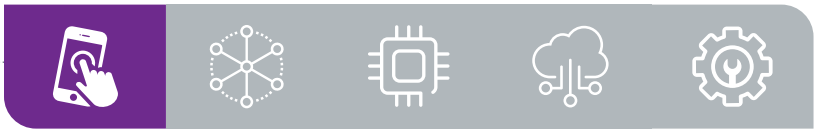
TEST DET ILS

Required exam	+ Core 1 (220-1101)
Number of questions	Maximum of 90
Types of questions	Multiple-choice and performance-based
Length of test	90 minutes
Recommended experience	12 months of hands-on experience in a help desk support technician, desktop support technician, or field service technician job role
Passing score	675 (on a scale of 100–900)

EX M OBJECTIVES (DOM INS)

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

DOM IN		PERCENT GE OF EX MIN TION
1.0	Mobile Devices	15%
2.0	Networking	20%
3.0	Hardware	25%
4.0	Virtualization and Cloud Computing	11%
5.0	Hardware and Network Troubleshooting	29%
Total		**100%**



1.0 Mobile Devices

1.1 Given a scenario, install and configure laptop hardware and components.

- **Hardware/device replacement**
  - Battery
  - Keyboard/keys
  - Random-access memory (R M)
  - Hard disk drive (HDD)/solid-state drive (SSD) migration
  - HDD/SSD replacement
  - Wireless cards
- **Physical privacy and security components**
  - Biometrics
  - Near-field scanner features

1.2 Compare and contrast the display components of mobile devices.

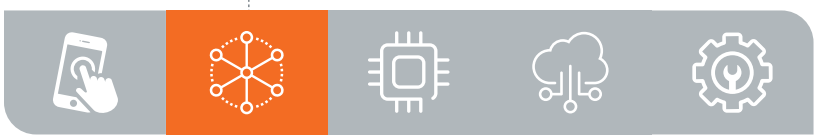
- **Types**
  - Liquid crystal display (LCD)
    - In-plane switching (IPS)
    - Twisted nematic (TN)
    - Vertical alignment (V)
  - Organic light-emitting diode (OLED)
- **Mobile display components**
- **WiFi antenna connector/ placement**
- **Camera/webcam**
- **Microphone**
- **Touch screen/digitizer**
- **Inverter**

1.3 Given a scenario, set up and configure accessories and ports of mobile devices.

- **Connection methods**
  - Universal Serial Bus (USB)/ USB-C/microUSB/miniUSB
  - Lightning
  - Serial interfaces
  - Near-field communication (NFC)
  - Bluetooth
  - Hotspot
- **ccessories**
  - Touch pens
  - Headsets
  - Speakers
  - Webcam
- **Docking station**
- **Port replicator**
- **Trackpad/drawing pad**

1.4 Given a scenario, configure basic mobile-device network connectivity and application support.

- **Wireless/cellular data network (enable/disable)**
  - 2G/3G/4G/5G
  - Hotspot
  - Global System for Mobile Communications (GSM) vs. code-division multiple access (CDM)
  - Preferred Roaming List (PRL) updates
- **Bluetooth**
  - Enable Bluetooth
  - Enable pairing
  - Find a device for pairing
  - Enter the appropriate PIN code
  - Test connectivity
- **Location services**
  - Global Positioning System (GPS) services
  - Cellular location services
- **Mobile device management (MDM)/mobile application management (M M)**
  - Corporate email configuration
  - Two-factor authentication
  - Corporate applications
- **Mobile device synchronization**
  - ccount setup
    - Microsoft 365
    - Google Workspace
    - iCloud
  - Data to synchronize
    - Mail
    - Photos
    - Calendar
    - Contacts
    - Recognizing data caps



2.0 Networking

2.1 Compare and contrast Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) ports, protocols, and their purposes.

- **Ports and protocols**
  - 20/21 – File Transfer Protocol (FTP)
  - 22 – Secure Shell (SSH)
  - 23 – Telnet
  - 25 – Simple Mail Transfer Protocol (SMTP)
  - 53 – Domain Name System (DNS)
  - 67/68 – Dynamic Host Configuration Protocol (DHCP)
  - 80 – Hypertext Transfer Protocol (HTTP)
  - 110 – Post Office Protocol 3 (POP3)
  - 137/139 – Network Basic Input/Output System (NetBIOS)/NetBIOS over TCP/IP (NetBT)
  - 143 – Internet Mail ccess Protocol (IM P)
  - 161/162 – Simple Network Management Protocol (SNMP)
  - 389 – Lightweight Directory ccess Protocol (LD P)
  - 443 – Hypertext Transfer Protocol Secure (HTTPS)
  - 445 – Server Message Block (SMB)/Common Internet File System (CIFS)
  - 3389 – Remote Desktop Protocol (RDP)
- **TCP vs. UDP**
  - Connectionless
    - DHCP
    - Trivial File Transfer Protocol (TFTP)
  - Connection-oriented
    - HTTPS
    - SSH

2.2 Compare and contrast common networking hardware.

- **Routers**
- **Switches**
  - Managed
  - Unmanaged
- **ccess points**
- **Patch panel**
- **Firewall**
- **Power over Ethernet (PoE)**
  - Injectors
  - Switch
  - PoE standards
- **Hub**
- **Cable modem**
- **Digital subscriber line (DSL)**
- **Optical network terminal (ONT)**
- **Network interface card (NIC)**
- **Software-defined networking (SDN)**

2.3 Compare and contrast protocols for wireless networking.

- **Frequencies**
  - 2.4GHz
  - 5GHz
- **Channels**
  - Regulations
  - 2.4GHz vs. 5GHz
- **Bluetooth**
- **802.11**
  - a
  - b
  - g
  - n
  - ac (WiFi 5)
  - ax (WiFi 6)
- **Long-range fixed wireless**
  - Licensed
  - Unlicensed
  - Power
  - Regulatory requirements for wireless power
- **NFC**
- **Radio-frequency identification (RFID)**

2.4 Summarize services provided by networked hosts.

- **Server roles**
  - DNS
  - DHCP
  - Fileshare
  - Print servers
  - Mail servers
  - Syslog
  - Web servers
  - uthentication, authorization, and accounting ( )
- **Internet appliances**
  - Spam gateways
  - Unified threat management (UTM)
  - Load balancers
  - Proxy servers
- **Legacy/embedded systems**
  - Supervisory control and data acquisition (SC D)
- **Internet of Things (IoT) devices**

2.5 Given a scenario, install and configure basic wired/wireless small office/home office (SOHO) networks.

- **Internet Protocol (IP) addressing**
  - IPv4
    - Private addresses
    - Public addresses
  - IPv6
  - utomatic Private IP ddressing (PIP)
  - Static
  - Dynamic
  - Gateway

2.6 Compare and contrast common network configuration concepts.

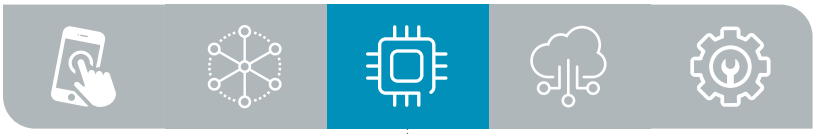
- **DNS**
  - ddress
    -
    -
  - Mail exchanger (MX)
  - Text (TXT)
    - Spam management
      (i) DomainKeys Identified Mail (DKIM)
      (ii) Sender Policy Framework (SPF)
      (iii) Domain-based Message uthentication, Reporting, and Conformance (DM RC)
- **DHCP**
  - Leases
  - Reservations
  - Scope
- **Virtual L N (VL N)**
- **Virtual private network (VPN)**

2.7 Compare and contrast Internet connection types, network types, and their features.

- **Internet connection types**
  - Satellite
  - Fiber
  - Cable
  - DSL
  - Cellular
  - Wireless Internet service provider (WISP)
- **Network types**
  - Local area network (L N)
  - Wide area network (W N)
  - Personal area network (P N)
  - Metropolitan area network (M N)
  - Storage area network (S N)
  - Wireless local area network (WL N)

2.8 Given a scenario, use networking tools.

- **Crimper**
- **Cable stripper**
- **WiFi analyzer**
- **Toner probe**
- **Punchdown tool**
- **Cable tester**
- **Loopback plug**
- **Network tap**



3.0 Hardware

3.1 Explain basic cable types and their connectors, features, and purposes.

- **Network cables**
  - Copper
    - Cat 5
    - Cat 5e
    - Cat 6
    - Cat 6a
    - Coaxial
    - Shielded twisted pair
      (i) Direct burial
    - Unshielded twisted pair
  - Plenum
  - Optical
    - Fiber
  - T568 /T568B
- **Peripheral cables**
  - USB 2.0
  - USB 3.0
  - Serial
  - Thunderbolt
- **Video cables**
  - High-Definition Multimedia Interface (HDMI)
  - DisplayPort
  - Digital Visual Interface (DVI)
  - Video Graphics rray (VG)
- **Hard drive cables**
  - Serial dvanced Technology ttachment (S T)
  - Small Computer System Interface (SCSI)
  - External S T (eS T)
  - Integrated Drive Electronics (IDE)
- **dapters**
- **Connector types**
  - RJ11
  - RJ45
  - F type
  - Straight tip (ST)
  - Subscriber connector (SC)
  - Lucent connector (LC)
  - Punchdown block
  - microUSB
  - miniUSB
  - USB-C
  - Molex
  - Lightning port
  - DB9

3.2 Given a scenario, install the appropriate R M.

- **R M types**
  - Virtual R M
  - Small outline dual inline memory module (SODIMM)
  - Double Data Rate 3 (DDR3)
  - Double Data Rate 4 (DDR4)
  - Double Data Rate 5 (DDR5)
  - Error correction code (ECC) R M
- **Single-channel**
- **Dual-channel**
- **Triple-channel**
- **Quad-channel**

3.3 Given a scenario, select and install storage devices.

- **Hard drives**
  - Speeds
    - 5,400rpm
    - 7,200rpm
    - 10,000rpm
    - 15,000rpm
  - Form factor
    - 2.5
    - 3.5
- **SSDs**
  - Communications interfaces
    - Non-volatile Memory Express (NVMe)
    - S T
    - Peripheral Component Interconnect Express (PCIe)
  - Form factors
    - M.2
    - mS T
- **Drive configurations**
  - Redundant rray of Independent (or Inexpensive) Disks (R ID) 0, 1, 5, 10
- **Removable storage**
  - Flash drives
  - Memory cards
  - Optical drives

3.4 Given a scenario, install and configure motherboards, central processing units (CPUs), and add-on cards.

- **Motherboard form factor**
  - dvanced Technology eXtended (TX)
  - Information Technology eXtended (ITX)
- **Motherboard connector types**
  - Peripheral Component Interconnect (PCI)
  - PCI Express (PCIe)
  - Power connectors
  - S T
  - eS T
  - Headers
  - M.2
- **Motherboard compatibility**
  - CPU sockets
    - dvanced Micro Devices, Inc. (MD)
    - Intel
  - Server
  - Multisocket
  - Desktop
  - Mobile
- **Basic Input/Output System (BIOS)/Unified Extensible Firmware Interface (UEFI) settings**
  - Boot options
  - USB permissions
  - Trusted Platform Module (TPM) security features
  - Fan considerations
  - Secure Boot
  - Boot password
- **Encryption**
  - TPM
  - Hardware security module (HSM)
- **CPU architecture**
  - x64/x86
  - dvanced RISC Machine (RM)
  - Single-core
  - Multicore
  - Multithreading
  - Virtualization support
- **Expansion cards**
  - Sound card
  - Video card
  - Capture card
  - NIC
- **Cooling**
  - Fans
  - Heat sink
  - Thermal paste/pads
  - Liquid

3.5 Given a scenario, install or replace the appropriate power supply.

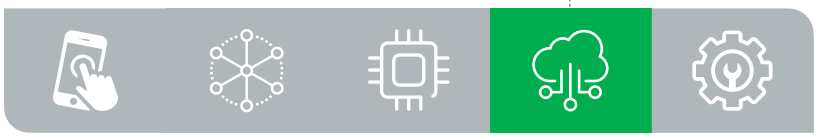
- **Input 110-120 V C vs. 220-240 V C**
- **Output 3.3V vs. 5V vs. 12V**
- **20-pin to 24-pin motherboard adapter**
- **Redundant power supply**
- **Modular power supply**
- **Wattage rating**

3.6 Given a scenario, deploy and configure multifunction devices/ printers and settings.

- **Properly unboxing a device – setup location considerations**
- **Use appropriate drivers for a given OS**
  - Printer Control Language (PCL) vs. PostScript
- **Device connectivity**
  - USB
  - Ethernet
  - Wireless
- **Public/shared devices**
  - Printer share
  - Print server
- **Configuration settings**
  - Duplex
  - Orientation
  - Tray settings
  - Quality
- **Security**
  - User authentication
  - Badging
  - udit logs
  - Secured prints
- **Network scan services**
  - Email
  - SMB
  - Cloud services
- **utomatic document feeder (DF)/flatbed scanner**

3.7 Given a scenario, install and replace printer consumables.

- **Laser**
  - Imaging drum, fuser assembly, transfer belt, transfer roller, pickup rollers, separation pads, duplexing assembly
  - Imaging process: processing, charging, exposing, developing, transferring, fusing, and cleaning
  - Maintenance: Replace toner, apply maintenance kit, calibrate, clean
- **Inkjet**
  - Ink cartridge, print head, roller, feeder, duplexing assembly, carriage belt
  - Calibration
  - Maintenance: Clean heads, replace cartridges, calibrate, clear jams
- **Thermal**
  - Feed assembly, heating element
  - Special thermal paper
  - Maintenance: Replace paper, clean heating element, remove debris
  - Heat sensitivity of paper
- **Impact**
  - Print head, ribbon, tractor feed
  - Impact paper
  - Maintenance: Replace ribbon, replace print head, replace paper
- **3-D printer**
  - Filament
  - Resin
  - Print bed



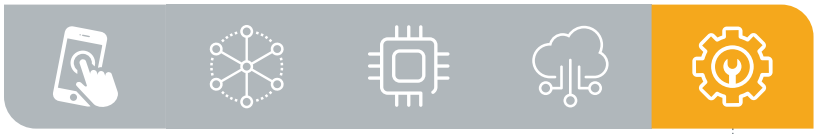
4.0 Virtualization and Cloud Computing

4.1 Summarize cloud-computing concepts.

- **Common cloud models**
  - Private cloud
  - Public cloud
  - Hybrid cloud
  - Community cloud
  - Infrastructure as a service (IaaS)
  - Software as a service (SaaS)
  - Platform as a service (PaaS)
- **Cloud characteristics**
  - Shared resources
  - Metered utilization
  - Rapid elasticity
  - High availability
  - File synchronization
- **Desktop virtualization**
  - Virtual desktop infrastructure (VDI) on premises
  - VDI in the cloud

4.2 Summarize aspects of client-side virtualization.

- **Purpose of virtual machines**
  - Sandbox
  - Test development
  - pplication virtualization
    - Legacy software/OS
    - Cross-platform virtualization
- **Resource requirements**
- **Security requirements**



5.0 Hardware and Network Troubleshooting

5.1 Given a scenario, apply the best practice methodology to resolve problems.

- **lways consider corporate policies, procedures, and impacts before implementing changes**
  1. Identify the problem
     - Gather information from the user, identify user changes, and, if applicable, perform backups before making changes
     - Inquire regarding environmental or infrastructure changes
  2. Establish a theory of probable cause (question the obvious)
     - If necessary, conduct external or internal research based on symptoms
  3. Test the theory to determine the cause
     - Once the theory is confirmed, determine the next steps to resolve the problem
     - If the theory is not confirmed, re-establish a new theory or escalate
  4. Establish a plan of action to resolve the problem and implement the solution
     - Refer to the vendor's instructions for guidance
  5. Verify full system functionality and, if applicable, implement preventive measures
  6. Document the findings, actions, and outcomes

5.2 Given a scenario, troubleshoot problems related to motherboards, R M, CPU, and power.

- **Common symptoms**
  - Power-on self-test (POST) beeps
  - Proprietary crash screens (blue screen of death [BSOD]/ pinwheel)
  - Black screen
  - No power
  - Sluggish performance
  - Overheating
  - Burning smell
  - Intermittent shutdown
  - pplication crashes
  - Grinding noise
  - Capacitor swelling
  - Inaccurate system date/time

5.3 Given a scenario, troubleshoot and diagnose problems with storage drives and R ID arrays.

- **Common symptoms**
  - Light-emitting diode (LED) status indicators
  - Grinding noises
  - Clicking sounds
  - Bootable device not found
  - Data loss/corruption
  - R ID failure
  - Self-monitoring, nalysis, and Reporting Technology (S.M. .R.T.) failure
  - Extended read/write times
  - Input/output operations per second (IOPS)
  - Missing drives in OS

5.4 Given a scenario, troubleshoot video, projector, and display issues.

- **Common symptoms**
  - Incorrect data source
  - Physical cabling issues
  - Burned-out bulb
  - Fuzzy image
  - Display burn-in
  - Dead pixels
  - Flashing screen
  - Incorrect color display
  - udio issues
  - Dim image
  - Intermittent projector shutdown

5.5 Given a scenario, troubleshoot common issues with mobile devices.

- **Common symptoms**
  - Poor battery health
  - Swollen battery
  - Broken screen
  - Improper charging
  - Poor/no connectivity
  - Liquid damage
  - Overheating
  - Digitizer issues
  - Physically damaged ports
  - Malware
  - Cursor drift/touch calibration

5.6 Given a scenario, troubleshoot and resolve printer issues.

- **Common symptoms**
  - Lines down the printed pages
  - Garbled print
  - Toner not fusing to paper
  - Paper jams
  - Faded print
  - Incorrect paper size
  - Paper not feeding
  - Multipage misfeed
  - Multiple prints pending in queue
  - Speckling on printed pages
  - Double/echo images on the print
  - Incorrect color settings
  - Grinding noise
  - Finishing issues
    - Staple jams
    - Hole punch
  - Incorrect page orientation

5.7 Given a scenario, troubleshoot problems with wired and wireless networks.

- **Common symptoms**
  - Intermittent wireless connectivity
  - Slow network speeds
  - Limited connectivity
  - Jitter
  - Poor Voice over Internet Protocol (VoIP) quality
  - Port flapping
  - High latency
  - External interference

CompTI + Core 1 (220-1101) cronym List

The following is a list of acronyms that appear on the CompTI + Core 1 (220-1101) 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.

cronym	Definition
	uthentication, uthorization, and ccounting
C	lternating Current
CL	ccess Control List
DF	utomatic Document Feeder
ES	dvanced Encryption Standard
P	ccess Point
PFS	pple File System
PIP	utomatic Private Internet Protocol ddressing
PK	ndroid Package
RM	dvanced RISC [Reduced Instruction Set Computer] Machine
RP	ddress Resolution Protocol
T	dvanced Technology ttachment
TM	synchronous Transfer Mode
TX	dvanced Technology Extended
UP	cceptable Use Policy
BIOS	Basic Input/Output System
BSOD	Blue Screen of Death
BYOD	Bring Your Own Device
C D	Computer-aided Design
C PTCH	Completely utomated Public Turing Test to Tell Computers and Humans part
CD	Compact Disc
CDFS	Compact Disc File System
CDM	Code-Division Multiple ccess
CERT	Computer Emergency Response Team
CIFS	Common Internet File System
CMD	Command Prompt
CMOS	Complementary Metal-Oxide Semiconductor
CPU	Central Processing Unit
CRL	Certificate Revocation List
DC	Direct Current
DDoS	Distributed Denial of Service
DDR	Double Data Rate
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual Inline Memory Module
DKIM	DomainKeys Identified Mail
DM	Direct Memory ccess
DM RC	Domain-based Message uthentication, Reporting, and Conformance
DNS	Domain Name System
DoS	Denial of Service
DR M	Dynamic Random- ccess Memory
DRM	Digital Rights Management
DSL	Digital Subscriber Line
DVI	Digital Visual Interface
DVI-D	Digital Visual Interface-Digital
ECC	Error Correcting Code
EFS	Encrypting File System
EMI	Electromagnetic Interference
EOL	End-of-Life
eS T	External Serial dvanced Technology ttachment
ESD	Electrostatic Discharge
EUL	End-User License greement
exF T	Extensible File llocation Table
ext	Extended File System
F T	File llocation Table
F T12	12-bit File llocation Table
F T16	16-bit File llocation Table
F T32	32-bit File llocation Table
FSB	Front-Side Bus
FTP	File Transfer Protocol
GFS	Grandfather-Father-Son
GPS	Global Positioning System
GPT	GUID [Globally Unique Identifier] Partition Table
GPU	Graphics Processing Unit
GSM	Global System for Mobile Communications
GUI	Graphical User Interface
GUID	Globally Unique Identifier
H L	Hardware bstraction Layer
H V	Hardware-assisted Virtualization

cronym	Definition
HCL	Hardware Compatibility List
HDCP	High-bandwidth Digital Content Protection
HDD	Hard Disk Drive
HDMI	High-Definition Multimedia Interface
HSM	Hardware Security Module
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
I/O	Input/Output
IaaS	Infrastructure as a Service
ICR	Intelligent Character Recognition
IDE	Integrated Drive Electronics
IDS	Intrusion Detection System
IEEE	Institute of Electrical and Electronics Engineers
IM P	Internet Mail ccess Protocol
IOPS	Input/Output Operations Per Second
IoT	Internet of Things
IP	Internet Protocol
IPS	Intrusion Prevention System
IPS	In-plane Switching
IPSec	Internet Protocol Security
IR	Infrared
IrD	Infrared Data ssociation
IRP	Incident Response Plan
ISO	International Organization for Standardization
ISP	Internet Service Provider
ITX	Information Technology eXtended
KB	Knowledge Base
KVM	Keyboard-Video-Mouse
L N	Local rea Network
LC	Lucent Connector
LCD	Liquid Crystal Display
LD P	Lightweight Directory ccess Protocol
LED	Light-emitting Diode
M C	Media ccess Control/Mandatory ccess Control
M M	Mobile pplication Management
M N	Metropolitan rea Network
MBR	Master Boot Record
MDM	Mobile Device Management
MF	Multifactor uthentication
MFD	Multifunction Device
MFP	Multifunction Printer
MMC	Microsoft Management Console
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MSR	Microsoft Remote ssistance

cronym	Definition
MX	Mail Exchange
N C	Network ccess Control
N T	Network ddress Translation
ND	Non-disclosure greement
NetBIOS	Networked Basic Input/Output System
NetBT	NetBIOS over TCP/IP [Transmission Control Protocol/Internet Protocol]
NFC	Near-field Communication
NFS	Network File System
NIC	Network Interface Card
NTFS	New Technology File System
NVMe	Non-volatile Memory Express
OCR	Optical Character Recognition
OLED	Organic Light-emitting Diode
ONT	Optical Network Terminal
OS	Operating System
PaaS	Platform as a Service
P N	Personal rea Network
PC	Personal Computer
PCIe	Peripheral Component Interconnect Express
PCL	Printer Command Language
PE	Preinstallation Environment
PII	Personally Identifiable Information
PIN	Personal Identification Number
PKI	Public Key Infrastructure
PoE	Power over Ethernet
POP3	Post Office Protocol 3
POST	Power-on Self-Test
PPP	Point-to-Point Protocol
PRL	Preferred Roaming List
PSU	Power Supply Unit
PXE	Preboot Execution Environment
R DIUS	Remote uthentication Dial-in User Service
R ID	Redundant rray of Independent (or Inexpensive) Disks
R M	Random-access Memory
RDP	Remote Desktop Protocol
RF	Radio Frequency
RFI	Radio-Frequency Interference
RFID	Radio-Frequency Identification
RJ11	Registered Jack Function 11
RJ45	Registered Jack Function 45
RMM	Remote Monitoring and Management
RTO	Recovery Time Objective
SaaS	Software as a Service
S N	Storage rea Network
S S	Serial ttached SCSI [Small Computer System Interface]
S T	Serial dvanced Technology ttachment

cronym	Definition
SC	Subscriber Connector
SC D	Supervisory Control and Data cquisition
SCP	Secure Copy Protection
SCSI	Small Computer System Interface
SDN	Software-defined Networking
SFTP	Secure File Transfer Protocol
SIM	Subscriber Identity Module
SIMM	Single Inline Memory Module
S.M. .R.T.	Self-monitoring nalysis and Reporting Technology
SMB	Server Message Block
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SNTP	Simple Network Time Protocol
SODIMM	Small Outline Dual Inline Memory Module
SOHO	Small Office/Home Office
SPF	Sender Policy Framework
SQL	Structured Query Language
SR M	Static Random-access Memory
SSD	Solid-State Drive
SSH	Secure Shell
SSID	Service Set Identifier
SSL	Secure Sockets Layer
SSO	Single Sign-on
ST	Straight Tip
STP	Shielded Twisted Pair
T C CS	Terminal ccess Controller ccess-Control System
TCP	Transmission Control Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
TFTP	Trivial File Transfer Protocol
TKIP	Temporal Key Integrity Protocol
TLS	Transport Layer Security
TN	Twisted Nematic
TPM	Trusted Platform Module
U C	User ccount Control
UDP	User Datagram Protocol
UEFI	Unified Extensible Firmware Interface
UNC	Universal Naming Convention
UPnP	Universal Plug and Play
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus
UTM	Unified Threat Management
UTP	Unshielded Twisted Pair
V	Vertical lignment
VDI	Virtual Desktop Infrastructure
VG	Video Graphics rray
VL N	Virtual L N [Local rea Network]
VM	Virtual Machine
VNC	Virtual Network Computer
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
VR M	Video Random-access Memory
W N	Wide rea Network
WEP	Wired Equivalent Privacy
WISP	Wireless Internet Service Provider
WL N	Wireless L N [Local rea Network]
WMN	Wireless Mesh Network
WP	WiFi Protected ccess
WW N	Wireless Wide rea Network
XSS	Cross-site Scripting

CompTI + Core 1 (220-1101) Proposed Hardware and Software List

**CompTI has included this sample list of hardware and software to assist candidates as they prepare for the + Core 1 (220-1101) exam. This list may also be helpful for training companies that wish to create a lab component to their training offering. The bulleted lists below each topic are sample lists and are not exhaustive.

Equipment

- pple tablet/smartphone
- ndroid tablet/smartphone
- Windows tablet
- Chromebook
- Windows laptop/Mac laptop/Linux laptop
- Windows desktop/Mac desktop/Linux desktop
- Windows server with ctive Directory and Print Management
- Monitors
- Projectors
- SOHO router/switch
- ccess point
- VoIP phone
- Printer
  - Laser/inkjet
  - Wireless
  - 3-D printer
  - Thermal
- Surge suppressor
- Uninterruptible power supply (UPS)
- Smart devices (IoT devices)
- Server with a hypervisor
- Punchdown block
- Patch panel
- Webcams
- Speakers
- Microphones

Spare parts/hardware

- Motherboards
- R M
- Hard drives
- Power supplies
- Video cards
- Sound cards
- Network cards
- Wireless NICs
- Fans/cooling devices/heat sink
- CPUs
- ssorted connectors/cables
  - USB
  - HDMI
  - DisplayPort
  - DVI
  - VG
- dapters
  - Bluetooth adapter
- Network cables
- Unterminated network cable/connectors
- lternating current (C) adapters
- Optical drives
- Screws/standoffs
- Cases
- Maintenance kit
- Mice/keyboards
- Keyboard-video-mouse (KVM)
- Console cable
- SSD

Tools

- Screwdriver
- Multimeter
- Wire cutters
- Punchdown tool
- Crimper
- Power supply tester
- Cable stripper
- Standard technician toolkit
- Electrostatic discharge (ESD) strap
- Thermal paste
- Cable tester
- Cable toner
- WiFi analyzer
- S T to USB connectors

Software

- Operating systems
  - Linux
  - Chrome OS
  - Microsoft Windows
  - macOS
  - ndroid
  - iOS
- Preinstallation environment (PE) disk/live compact disc (CD)
- ntivirus software
- Virtualization software
- nti-malware
- Driver software

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