

 uCertify

# Course Outline

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**CompTIA A+ Complete Study  
Guide (Course & Labs)**



23 Jul 2019



Lesson



Practice test



Lab



Live-Lab

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## 1. Course Objective

Gear up to prepare for the CompTIA A+ exams with the CompTIA A+ Complete Study Guide that contains course and performance based labs. Performance based labs simulate real-world, hardware, software & command line interface environments and can be mapped to any text-book, course & training. CompTIA training course covers all the objectives of 220-901 & 220-902 exams and provides the technical knowledge required to install, configure, and maintain devices, PCs and software for end users; properly and safely diagnose, resolve and document common hardware and software issues.

## 2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

## 3. Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

460  
EXERCISES

## 4. Quizzes

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.

217  
QUIZZES

## 5. Flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.

335  
FLASHCARDS

## 6. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.



## 7. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

## 8. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

## 9. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assignments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

## 10. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 5 years:

- **2014**
  1. Best Postsecondary Learning Solution
  
- **2015**
  1. Best Education Solution
  2. Best Virtual Learning Solution
  3. Best Student Assessment Solution
  4. Best Postsecondary Learning Solution
  5. Best Career and Workforce Readiness Solution
  6. Best Instructional Solution in Other Curriculum Areas
  7. Best Corporate Learning/Workforce Development Solution
  
- **2016**
  1. Best Virtual Learning Solution
  2. Best Education Cloud-based Solution

3. Best College and Career Readiness Solution
4. Best Corporate / Workforce Learning Solution
5. Best Postsecondary Learning Content Solution
6. Best Postsecondary LMS or Learning Platform
7. Best Learning Relationship Management Solution

- **2017**

1. Best Overall Education Solution
2. Best Student Assessment Solution
3. Best Corporate/Workforce Learning Solution
4. Best Higher Education LMS or Learning Platform

- **2018**

1. Best Higher Education LMS or Learning Platform
2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

## 11. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

### Syllabus

Chapter 1: Motherboards, Processors, and Memory



- Identifying Components of Motherboard
- Identifying Purposes and Characteristics of Processors
- Identifying Purposes and Characteristics of Memory
- Identifying Purposes and Characteristics of Cooling Systems
- Summary
- Exam Essentials

## Chapter 2: Storage Devices and Power Supplies

- Identifying Purposes and Characteristics of Storage Devices
- Identifying Purposes and Characteristics of Power Supplies
- Summary
- Exam Essentials

## Chapter 3: Peripherals and Expansion

- Installing and Configuring Expansion Cards
- Identifying Characteristics of Connectors and Cables
- Input Devices

- Output Devices
- Input and Output Devices
- Summary
- Exam Essentials

#### Chapter 4: Display Devices

- Understanding Display Types and Settings
- Understanding Video Standards and Technologies
- Summary
- Exam Essentials

#### Chapter 5: Custom Configurations

- Standard Thick Clients
- Graphic and CAD/CAM Design Workstations
- Audio/Video Editing Workstations
- Virtualization Workstations
- Gaming PCs
- Home Theater PCs

- Thin Clients
- Home Server PCs
- Summary
- Exam Essentials

## Chapter 6: Networking Fundamentals

- Understanding Networking Principles
- Identifying Common Network Hardware
- Summary
- Exam Essentials

## Chapter 7: Introduction to TCP/IP

- Understanding TCP/IP
- Summary
- Exam Essentials

## Chapter 8: Installing Wireless and SOHO Networks

- Understanding Wireless Networking

- Installing and Configuring SOHO Networks
- Summary
- Exam Essentials

## Chapter 9: Understanding Laptops

- Understanding Laptop Architecture
- Disassembling and Reassembling Laptops
- Summary
- Exam Essentials

## Chapter 10: Understanding Mobile Devices

- Understanding Mobile Devices
- Summary
- Exam Essentials

## Chapter 11: Installing and Configuring Printers

- Understanding Print Technologies and Imaging Processes
- Installing and Configuring Printers

- Performing Printer Maintenance and Upgrades
- Summary
- Exam Essentials

## Chapter 12: Hardware and Network Troubleshooting

- Troubleshooting Core Hardware Issues
- Troubleshooting Mobile Devices, Printers, and Networking
- Summary
- Exam Essentials

## Chapter 13: Operating System Basics

- Understanding Operating Systems
- Going Virtual
- Preparing for the Exam
- Summary
- Exam Essentials

## Chapter 14: Operating System Administration

- Interacting with Operating Systems
- Administrative Tools
- Disk Management
- Summary
- Exam Essentials

### Chapter 15: Working with Windows 8/8.1

- Windows Editions
- Installing Windows 8
- Windows 8 Boot Methods
- Summary
- Exam Essentials

### Chapter 16: Working with Windows 7

- Windows 7 Editions
- Installing Windows 7
- The Windows 7 Boot Sequences
- Windows 7 Features

- Windows 7 Administrative Tools
- Unique Control Panel Utilities
- Networking and Windows 7
- Windows 7 System Performance and Optimization
- Summary
- Exam Essentials

## Chapter 17: Working with Windows Vista

- Windows Vista Editions
- Installing Windows Vista
- The Windows Vista Boot Sequences
- Windows Vista Features
- Windows Vista Administrative Tools
- Distinctive Utilities
- Networking and Windows Vista
- Vista System Performance and Optimization
- Summary
- Exam Essentials

## Chapter 18: Working with Mac OS and Linux

- Best Practices
- Tools
- Features
- Basic Linux Commands
- Summary
- Exam Essentials

## Chapter 19: Security

- Common Prevention Methods
- Common Security Threats
- Workstation Security Best Practices
- Working with Windows OS Security Settings
- Mobile Device Security
- Destruction and Disposal Methods
- Securing a SOHO Network (Wireless)
- Securing a SOHO Network (Wired)



- Summary
- Exam Essentials

## Chapter 20: Network Services, Cloud Computing, and Virtualization

- Understanding Network Services
- Understanding Cloud Computing and Virtualization
- Summary
- Exam Essentials

## Chapter 21: Mobile Operating Systems and Connectivity

- Understanding Mobile Operating Systems
- Network Connectivity and Email
- Mobile Device Synchronization
- Summary
- Exam Essentials

## Chapter 22: Troubleshooting Theory, OSs, and Security

- Understanding Troubleshooting Theory

- Troubleshooting Operating Systems
- Troubleshooting Security Issues
- Troubleshooting Mobile Issues
- Troubleshooting Mobile Security Issues
- Summary
- Exam Essentials

### Chapter 23: Understanding Operational Procedures

- Understanding Safety Procedures
- Understanding Environmental Controls
- Understanding Policies, Licensing, and Privacy
- Demonstrating Professionalism
- Summary
- Exam Essentials

### Chapter 24: Appendix A

- 3d Objects

### Chapter 25: Appendix B

- Videos: 220-901

### Chapter 26: Appendix C

- Videos: 220-902

### Chapter 27: Appendix: 3D Game Simulation

## Videos and How To

uCertify course includes videos to help understand concepts. It also includes How Tos that help learners in accomplishing certain tasks.

142

VIDEOS

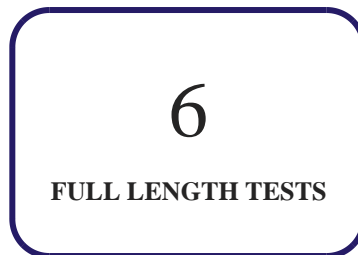
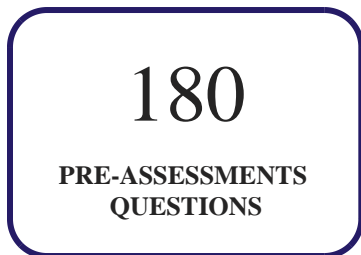
15:07

HOURS

## 12. Practice Test

uCertify provides full length practice tests. These tests closely follow the exam objectives and are designed to simulate real exam conditions. Each course has a number of test sets consisting of hundreds of items to ensure that learners are prepared for the certification exam.

## Here's what you get



## Features

### Full Remediation

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

### Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

### Learn, Test and Review Mode

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

## 13. Performance Based Labs

uCertify's performance-based labs are simulators that provides virtual environment. Labs deliver hands on experience with minimal risk and thus replace expensive physical labs. uCertify Labs are cloud-based, device-enabled and can be easily integrated with an LMS. Features of uCertify labs:

- Provide hands-on experience in a safe, online environment
- Labs simulate real world, hardware, software & CLI environment
- Flexible and inexpensive alternative to physical Labs
- Comes with well-organized component library for every task
- Highly interactive - learn by doing
- Explanations and remediation available
- Videos on how to perform

## Lab Tasks

- Identifying the CPU package types
- Identifying components of a motherboard chipset
- Identifying types of RAM
- Understanding the BIOS security options
- Installing a USB 3.0 PCI Express card (2.0 x4)
- Identifying a PCI-bus slot
- Identifying motherboard slots
- Installing motherboard components
- Installing expansion cards on a motherboard
- Installing a processor
- Identifying computer components
- Identifying computer parts
- Identifying a CPU socket
- Identifying memory modules
- Installing memory modules
- Identifying computer cooling systems

- Providing cooling and ventilation to a motherboard
- Formatting a pen drive
- Supplying power to a SATA drive
- Connecting the motherboard to the internal hard drive
- Inserting a pen drive into the USB port
- Identifying RAID level characteristics
- Installing SMPS and connecting it to the motherboard
- Replacing the power supply
- Identifying computer power supply connectors
- Installing an optical drive and PCI sound card
- Installing firewire cards
- Installing a PCI sound card
- Identifying sound card ports
- Identifying video card ports
- Understanding USB versions
- Identifying additional ports and connectors
- Identifying video ports and connectors
- Identifying I/O ports of a motherboard
- Identifying desktop PC ports
- Connecting a digital camera to a computer
- Connecting speakers to a computer
- Identifying input and output devices
- Extending monitor displays
- Changing the refresh rate in Windows 7
- Changing the display settings of a laptop
- Configuring Windows 7 for media streaming
- Understanding advantages and disadvantages of topologies
- Identifying the purpose of OSI layers
- Connecting a star topology
- Identifying network types
- Identifying OSI layer functions
- Identifying a network topology
- Identifying components of a coaxial cable

- Identifying types of a cable
- Identifying network connectors
- Identifying IP address class values
- Adding and removing an IPv6 address
- Identifying TCP/IP layers
- Identifying TCP/IP model layers
- Describing 802.11 modulation techniques
- Describing 802.11 networking standards
- Understanding QoS levels
- Identifying key steps to plan a network
- Connecting to a wireless network
- Configuring Internet settings on a router
- Installing a NIC
- Disabling a touchpad
- Comparing desktop and laptop
- Identifying a port
- Removing a pen drive from a computer
- Installing laptop components
- Identifying USB cables of devices
- Installing a printer
- Identifying a daisy-wheel printer
- Understanding the electrophotographic print process
- Inserting ink cartridges into a printer
- Connecting a USB printer to a computer
- Configuring printer memory
- Identifying the steps for using an inkjet cleaning solution
- Setting up a boot device priority
- Running different parameters of the net share command
- Analyzing domain names with nslookup
- Analyzing the TCP/IP configuration with netstat
- Analyzing network paths with tracert
- Renewing an IP address
- Stopping and restarting the print spooler service

- Describing error codes
- Identifying network cabling tools
- Understanding elements of a notepad window
- Examining file permissions
- Changing the system's screen saver
- Viewing the paging file information
- Auto-hiding the taskbar
- Labeling the Start menu of Windows 8
- Creating a virtual PC machine
- Changing the time zone
- Showing hidden and system-protected files
- Observing the Control Panel options in different views
- Running different parameters of the chkdsk command
- Configuring Performance Monitor
- Viewing processes details in the task manager
- Disabling certain applications and services at startup
- Viewing sound card driver version
- Creating a backup of a local disk
- Changing a basic disk into a dynamic disk
- Installing Windows 8
- Describing boot files
- Installing Windows 7 using VMware
- Rolling back to a restore point
- Turning on Windows 7 firewall logs
- Configuring password policies
- Creating a homegroup
- Connecting to a remote desktop
- Running power troubleshooter
- Configuring the TCP/IP values
- Understanding network card properties
- Exploring installed applications
- Customizing user account notification settings
- Identifying tools used in Mac OS and Linux



- Working with local Ethernet connection
- Listing files and directories
- Understanding Linux commands
- Verifying the working directory
- Modifying the ownership of a file
- Creating and listing directories
- Listing files of the current directory
- Identifying types of firewall
- Describing types of viruses
- Disabling the guest account
- Configuring BitLocker for an identification field
- Locking an iPhone with a password
- Configuring settings to allow pop-ups
- Configuring Windows 7 to use a proxy server
- Understanding email protocols
- Using Google's cloud services
- Enabling hardware virtualization
- Activating Google Now
- Downloading Instagram from the Google Play Store
- Downloading Instagram from the App Store.
- Configuring email in Android
- Disabling cellular data on an iPhone
- Turning on personal hotspot of an iPhone
- Setting up a VPN in Android
- Connecting an iPhone to the Wi-Fi network
- Establishing a Bluetooth connection
- Turning on airplane mode of an iPhone
- Viewing the iOS version
- Cleaning up the hard disk drive
- Configuring system in the event of a BSOD
- Running Disk Defragmenter in Windows 7
- Running Microsoft Security Essentials and removing infected files
- Identifying symptoms of problems with the mobile OS

- Understanding personal safety while moving equipment
- Identifying guidelines for effective communication

## Here's what you get

**150**  
PERFORMANCE BASED  
LAB

**89**  
VIDEO TUTORIALS

**51**  
MINUTES

## 14. Live Labs

Live-Lab is a real computer equipment, networked together and conveniently accessible over the internet using virtualization. A live-lab has equipments such as a computer, server, switch or router in it that a user is free to configure.

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality
- No hardware costs

## Lab Tasks

### **Motherboards, Processors, and Memory**

- Identifying the CPU package types
- Identifying components of a motherboard chipset
- Identifying types of RAM
- Understanding the BIOS security options
- Installing a USB 3.0 PCI Express card (2.0 x4)
- Identifying a PCI-bus slot
- Identifying motherboard slots
- Installing motherboard components
- Installing expansion cards on a motherboard
- Installing a processor
- Identifying computer components
- Identifying computer parts
- Identifying a CPU socket
- Identifying memory modules
- Installing memory modules
- Identifying computer cooling systems
- Providing cooling and ventilation to a motherboard

### **Storage Devices and Power Supplies**

- Formatting a pen drive
- Supplying power to a SATA drive
- Connecting the motherboard to the internal hard drive
- Inserting a pen drive into the USB port
- Identifying RAID level characteristics
- Installing SMPS and connecting it to the motherboard
- Replacing the power supply
- Identifying computer power supply connectors

### **Peripherals and Expansion**

- Installing an optical drive and PCI sound card

- Installing firewire cards
- Installing a PCI sound card
- Identifying sound card ports
- Identifying video card ports
- Understanding USB versions
- Identifying additional ports and connectors
- Identifying video ports and connectors
- Identifying I/O ports of a motherboard
- Identifying desktop PC ports
- Connecting a digital camera to a computer
- Connecting speakers to a computer
- Identifying input and output devices

### **Display Devices**

- Extending monitor displays
- Changing the refresh rate in Windows 7
- Changing the display settings of a laptop

### **Custom Configurations**

- Configuring Windows 7 for media streaming

### **Networking Fundamentals**

- Understanding advantages and disadvantages of topologies
- Identifying the purpose of OSI layers
- Connecting a star topology
- Identifying network types
- Identifying OSI layer functions
- Identifying a network topology
- Identifying components of a coaxial cable
- Identifying types of a cable
- Identifying network connectors

### **Introduction to TCP/IP**

- Identifying IP address class values
- Adding and removing an IPv6 address
- Identifying TCP/IP layers
- Identifying TCP/IP model layers

### **Installing Wireless and SOHO Networks**

- Describing 802.11 modulation techniques
- Describing 802.11 networking standards
- Understanding QoS levels
- Identifying key steps to plan a network
- Connecting to a wireless network
- Configuring Internet settings on a router
- Installing a NIC

### **Understanding Laptops**

- Disabling a touchpad
- Comparing desktop and laptop
- Identifying a port
- Removing a pen drive from a computer
- Installing laptop components

### **Understanding Mobile Devices**

- Identifying USB cables of devices

### **Installing and Configuring Printers**

- Installing a printer
- Identifying a daisy-wheel printer
- Understanding the electrophotographic print process
- Inserting ink cartridges into a printer

- Connecting a USB printer to a computer
- Configuring printer memory
- Identifying the steps for using an inkjet cleaning solution

### **Hardware and Network Troubleshooting**

- Setting up a boot device priority
- Running different parameters of the net share command
- Analyzing domain names with nslookup
- Analyzing the TCP/IP configuration with netstat
- Analyzing network paths with tracert
- Renewing an IP address
- Stopping and restarting the print spooler service
- Describing error codes
- Identifying network cabling tools

### **Operating System Basics**

- Understanding elements of a notepad window
- Examining file permissions
- Changing the system's screen saver
- Viewing the paging file information
- Auto-hiding the taskbar
- Labeling the Start menu of Windows 8
- Creating a virtual PC machine

### **Operating System Administration**

- Changing the time zone
- Showing hidden and system-protected files
- Observing the Control Panel options in different views
- Running different parameters of the chkdsk command
- Configuring Performance Monitor
- Viewing processes details in the task manager
- Disabling certain applications and services at startup

- Viewing sound card driver version
- Creating a backup of a local disk
- Changing a basic disk into a dynamic disk

### **Working with Windows 8/8.1**

- Installing Windows 8
- Describing boot files

### **Working with Windows 7**

- Installing Windows 7 using VMware
- Rolling back to a restore point
- Turning on Windows 7 firewall logs
- Configuring password policies
- Creating a homegroup
- Connecting to a remote desktop
- Running power troubleshooter
- Configuring the TCP/IP values
- Understanding network card properties
- Exploring installed applications
- Customizing user account notification settings

### **Working with Windows Vista**

### **Working with Mac OS and Linux**

- Identifying tools used in Mac OS and Linux
- Working with local Ethernet connection
- Listing files and directories
- Understanding Linux commands
- Verifying the working directory
- Modifying the ownership of a file
- Creating and listing directories

- Listing files of the current directory

### **Security**

- Identifying types of firewall
- Describing types of viruses
- Disabling the guest account
- Configuring BitLocker for an identification field
- Locking an iPhone with a password
- Configuring settings to allow pop-ups

### **Network Services, Cloud Computing, and Virtualization**

- Configuring Windows 7 to use a proxy server
- Understanding email protocols
- Using Google's cloud services
- Enabling hardware virtualization

### **Mobile Operating Systems and Connectivity**

- Activating Google Now
- Downloading Instagram from the Google Play Store
- Downloading Instagram from the App Store.
- Configuring email in Android
- Disabling cellular data on an iPhone
- Turning on personal hotspot of an iPhone
- Setting up a VPN in Android
- Connecting an iPhone to the Wi-Fi network
- Establishing a Bluetooth connection
- Turning on airplane mode of an iPhone
- Viewing the iOS version

### **Troubleshooting Theory, OSs, and Security**

- Cleaning up the hard disk drive



- Configuring system in the event of a BSOD
- Running Disk Defragmenter in Windows 7
- Running Microsoft Security Essentials and removing infected files
- Identifying symptoms of problems with the mobile OS

#### Understanding Operational Procedures

- Understanding personal safety while moving equipment
- Identifying guidelines for effective communication

#### Appendix A

#### Appendix B

#### Appendix C

#### Appendix: 3D Game Simulation

### Here's what you get

**150**  
LIVE LABS

**89**  
VIDEO TUTORIALS

**51**  
MINUTES

## 15. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

**Have Any Query? We Are Happy To Help!**

### GET IN TOUCH:

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■ [www.ucertify.com](http://www.ucertify.com)