

CompTIA® Network+® (Exam N10-006)

Course Specifications

Course Number: ELK93-012_rev1.1

Course length: 5.0 day(s)

Course Description

The CompTIA® Network+® (Exam N10-006) course builds on your existing user-level knowledge and experience with personal computer operating systems and networks to present the fundamental skills and concepts that you will need to use on the job in any type of networking career. If you are pursuing a CompTIA technical certification path, the CompTIA® A+® certification is an excellent first step to take before preparing for the CompTIA Network+ certification.

The CompTIA® Network+® (Exam N10-006) course can benefit you in two ways. It can assist you if you are preparing to take the CompTIA Network+ examination (Exam N10-006). Also, if your job duties include network troubleshooting, installation, or maintenance, or if you are preparing for any type of network-related career, it provides the background knowledge and skills you will require to be successful.

Course Objective: In this course, you will describe the major networking technologies and systems of modern networks, and be able to configure, manage, and troubleshoot modern networks.

You will:

- Identify basic network theory concepts and major network communications methods.
- Describe bounded network media.
- Identify unbounded network media.
- Identify the major types of network implementations.
- Identify TCP/IP addressing and data delivery methods.
- Implement routing technologies.
- Identify the major services deployed on TCP/IP networks.
- Identify the infrastructure of a WAN implementation.
- Identify the components used in cloud computing and virtualization.
- Describe basic concepts related to network security.
- Prevent security breaches.
- Respond to security incidents.
- Identify the components of a remote network implementation.
- Identify the tools, methods, and techniques used in managing a network.
- Describe troubleshooting of issues on a network.

Target Student: This course is intended for entry-level computer support professionals with a basic knowledge of computer hardware, software, and operating systems who wish to increase their knowledge and understanding of networking concepts and acquire the required skills to prepare for a career in network support or administration, or who wish to prepare for the CompTIA Network+ certification (Exam N10-006). A typical student taking the CompTIA® Network+® (Exam N10-006) course should have a minimum of nine months of professional computer support experience as a PC or help desk technician. Networking experience is helpful but not mandatory; A+ certification or equivalent skills and knowledge is helpful but not mandatory.

Course Outline

Prerequisites: To ensure your success in this course, you will need basic Windows end-user computer skills. To meet this prerequisite, you can take either of the following LogicalCHOICE courses, or have equivalent experience:

- Using Microsoft® Windows® 8
- Microsoft® Windows® 8 Transition from Windows® 7

In addition, we highly recommend that you hold the CompTIA A+ certification, or have equivalent skills and knowledge. You may want to take the LogicalCHOICE course CompTIA® A+®: A Comprehensive Approach (Exams 220-801 and 220-802) to gain those skills and knowledge.

Hardware Requirements

This course requires one computer for each student, one computer for the instructor, and one computer to function as a domain controller. Each computer will need:

- 1.4 gigahertz (GHz) (single 64-bit) processor or 1.3 GHz (dual core) processor or above.
- 4 GB of RAM or greater.
- 320 GB of hard disk or larger.
- Super VGA (SVGA) or higher resolution monitor capable of a screen resolution of at least 1,024 x 768 pixels, at least 256-color display, and a video adapter with at least 64 MB of memory.
- A mouse or other pointing device.
- A CD/DVD-ROM drive.
- Network adapter and cabling connecting each classroom computer.
- Network interface card and network cabling.
- A projection system to display the instructor's computer screen.
- Internet access (contact your local network administrator).

In addition, to fully support the completion of all the activities in the course, you will need:

- As many physical examples of different types of network media and connectors as possible, to support the activities in Lesson 2.
- To provide as many physical examples of hardware tools as possible, to support the activities in Lesson 15.
- To provide raw cable, the appropriate connectors, the appropriate crimping tool, a cable tester, and an optional eye loupe, for the cable assembly activity in Lesson 15.

Software Requirements

You will need the following software to set up this course:

- For all computers, Microsoft® Windows Server® 2012 R2, Standard Edition, with sufficient licenses. Windows Server 2012 requires activation unless you have a volume-licensing agreement. There is a grace period for activation. If the duration of your class will exceed the activation grace period (for example, if you are teaching the class over the course of an academic semester), you must activate the installations at some point before the grace period expires. Otherwise, those operating systems will stop working before the class ends.

For the instructor computer and all student computers:

- Microsoft Network Monitor. This utility is available at www.microsoft.com/downloads/en/details.aspx?FamilyID=983b941d-06cb-4658-b7f6-3088333d062f&displaylang=en. Copy the NM34_x64.exe file into the Tools folder that is created during the extraction of the course data files.

Course Outline

- SuperScan, which is a third-party security tool that is available at www.mcafee.com/us/downloads/free-tools/superscan.aspx. Copy the file into the Tools folder that is created during the extraction of the course data files.
- If necessary, software for viewing the course slides. (Instructor machine only.)

Course Content

Lesson 1: Network Theory

- Topic A: Networking Overview
- Topic B: Network Standards and the OSI Model
- Topic C: Network Types
- Topic D: Identify Network Configurations
- Topic E: Data Transmission Methods

Lesson 2: Bounded Network Media

- Topic A: Copper Media
- Topic B: Fiber Optic Media
- Topic C: Bounded Network Media Installation
- Topic D: Noise Control

Lesson 3: Unbounded Network Media

- Topic A: Wireless Networking
- Topic B: Wireless Network Devices and Components
- Topic C: Install a Wireless Network

Lesson 4: Network Implementations

- Topic A: Physical Network Topologies
- Topic B: Logical Network Topologies
- Topic C: Ethernet Networks
- Topic D: Network Devices
- Topic E: VLANs

Lesson 5: TCP/IP Addressing and Data Delivery

- Topic A: The TCP/IP Protocol Suite
- Topic B: IPv4 Addressing
- Topic C: Default IP Addressing Schemes
- Topic D: Create Custom IP Addressing Schemes
- Topic E: IPv6 Address Implementation
- Topic F: Delivery Techniques

Lesson 6: Routing

- Topic A: Enable Static Routing
- Topic B: Implement Dynamic IP Routing

Lesson 7: TCP/IP Services

- Topic A: Assign IP Addresses
- Topic B: Domain Naming Services
- Topic C: TCP/IP Commands
- Topic D: Common TCP/IP Protocols

Lesson 8: WAN Infrastructure

- Topic A: WAN Basics
- Topic B: WAN Connectivity Methods
- Topic C: WAN Transmission Technologies
- Topic D: Unified Communication Technologies

Lesson 9: Cloud and Virtualization Technologies

- Topic A: Virtualization
- Topic B: SAN Implementations
- Topic C: Cloud Computing

Lesson 10: Network Security Basics

- Topic A: Introduction to Network Security
- Topic B: Vulnerabilities
- Topic C: Threats and Attacks
- Topic D: Authentication Methods
- Topic E: Encryption Methods

Lesson 11: Preventing Security Breaches

- Topic A: Physical Security Controls
- Topic B: Network Access Controls
- Topic C: Install and Configure Firewalls
- Topic D: Harden Networks
- Topic E: Intrusion Detection and Prevention
- Topic F: Educate Users

Lesson 12: Responding to Security Incidents

- Topic A: Incident Management and Response
- Topic B: Basic Forensic Concepts

Lesson 13: Remote Networking

- Topic A: Remote Network Architectures
- Topic B: Remote Access Networking Implementations
- Topic C: Virtual Private Networking
- Topic D: VPN Protocols

Lesson 14: Network Management

Topic A: Network Monitoring

Topic B: Configuration Management Documentation

Topic C: Network Performance Optimization

Lesson 15: Troubleshooting Network Issues

Topic A: Network Troubleshooting Models

Topic B: Network Troubleshooting Utilities

Topic C: Hardware Troubleshooting Tools

Topic D: Common Connectivity Issues

Topic E: Troubleshoot Security Configuration Issues

Topic F: Troubleshoot Security Issues

Appendix A: Mapping Course Content to the CompTIA Network+ Exam

Appendix B: Network Fault Tolerance and Disaster Recovery

Appendix C: Planning and Implementing a SOHO Network

Appendix D: Legend for Icons Used in Network+ Figures