

CompTIA Network+ N10-005 Official Cert Guide Mapping Guide to CompTIA Network+ Simulator Labs

Domain 1.0: Network Concepts

1.1 Compare the layers of the OSI and TCP/IP Models

Lab Title	Book Chapter	Book Heading	Book Page Number
TCP/IP Model Layer Matching	2	The TCP/IP Stack	47
TCP/IP Protocols and Their Functions	2	The TCP/IP Stack	47
OSI Model Layer Functions	2	The OSI Model	31
Transport Layer Header Fields	2	The TCP/IP Stack	47
Network Layer Header Fields	2	The TCP/IP Stack	47
Data Link Layer Fields	2	The OSI Model	31

1.2 Classify how applications, devices, and protocols relate to the OSI Model layers

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Distinguish between Applications and Protocols	2	The TCP/IP Stack	47
OSI Model Layer and Network Devices	2	The OSI Model	31
Understanding Data Encapsulation	2	The OSI Model	31
Application Layer Network Server Descriptions	2	The TCP/IP Stack	47
Reference Model Terminology	2	The OSI Model	31

1.3 Explain the purpose and properties of IP addressing

Lab Title	Book Chapter	Book Heading	Book Page Number
Network Numbering Systems – Conversions	5	Binary Numbering	140
Network Numbering Systems – Adding	5	Binary Numbering	140
Binary Adding	5	Binary Numbering	140
Network Numbering Review Practice	5	Binary Numbering	140
Identify Parts of an IPv4 and IPv6 Address	5	Working with IP Addresses	139
Network Addressing Terminology	5	Working with IP Addresses	139

IPv4 Address Types and Classes	5	IPv4 Addressing	147
Calculating the Number of Hosts in a Given Network	5	Subnetting	162
Discovering the Network Number for a Given Host	5	Subnetting	162
IPv6 Addressing Terminology	5	IP Version 6	178
Discovering the Network Number for a Given Host	5	Subnetting	162
IPv6 Header Field Descriptions	5	IP Version 6	178
IPv6 Header Field Positioning	5	IP Version 6	178
IPv6 Address Format Prefix Types and Descriptions	5	IP Version 6	178
Truncating IPv6 Addresses	5	IP Version 6	178
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Summary Review of Header Fields	5	Working with IP Addresses	139
Determining if Two Computers Are on the Same Logical Network in IPv4	5	Subnetting	162
IPv4 Allocating Bits for Network Addresses	5	Subnetting	162
IPv4 – Create a Custom Subnet Mask (Part 1)	5	Subnetting	162
IPv4 – Create a Custom Subnet Mask (Part 2)	5	Subnetting	162
IPv4 – Using Variable-Length Subnet Masks	5	Subnetting	162
IPv4 Scenario-Based Test Applet	5	Subnetting	162
Intermediate IPv4 Addressing Practice 1	5	Subnetting	162
Intermediate IPv4 Addressing Practice 2	5	Subnetting	162
IPv4 Advanced – Route Aggregation Planning	5	Subnetting	162

1.4 Explain the purpose and properties of routing and switching

Lab Title	Book Chapter	Book Heading	Book Page Number
Routing Protocols	6	Routing Protocol Examples	202
Routed Protocols	6	Routing Traffic	189

1.5 Identify common TCP and UDP default ports

Lab Title	Book Chapter	Book Heading	Book Page Number
Matching Well-Known Port Numbers	2	The TCP/IP Stack	47

1.6 Explain the function of common networking protocols

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Network Application Protocols	2	The TCP/IP Stack	47
Configuring an FTP Server	2	Dissecting the OSI Model	29
Configuring an FTP Client	2	Dissecting the OSI Model	29
Configuring an Email Client	2	Dissecting the OSI Model	29

1.7 Summarize DNS Concepts and components

Lab Title	Book Chapter	Book Heading	Book Page Number
Domain Name Services Terminology	5	Assigning IPv4 Addresses	153
Configuring Static Hostname Resolution on a Workstation	5	Assigning IPv4 Addresses	153
Using NSLookup for DNS Troubleshooting	10	Windows Commands	316
DNS Troubleshooting Simulation	5	Assigning IPv4 Addresses	153

1.8 Given a scenario, implement the following network troubleshooting methodology

Lab Title	Book Chapter	Book Heading	Book Page Number
Reordering Troubleshooting Steps	13	Troubleshooting Basics	438
Troubleshooting Practice	13	Troubleshooting Network Issues	437

1.9 Identify virtual network components

Lab Title	Book Chapter	Book Heading	Book Page Number
Virtualization Terminology	3	Virtual Network Devices	95
Workstation Virtualization	3	Virtual Network Devices	95
Server Virtualization Planning	3	Virtual Network Devices	95
Contrast Virtualization Technologies and Services	3	Virtual Network Devices	95

Domain 2.0: Network Installation and Configuration

2.1 Given a scenario, install, and configure routers and switches

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Connect to Switch Console Port using PuTTY	4	Ethernet Switch Features	116
Connect to Switch and Reconfigure the Hostname and Password	4	Ethernet Switch Features	116
Configure an IP Address on a Switch with a Default Gateway	4	Ethernet Switch Features	116
Switch Management via Telnet	4	Ethernet Switch Features	116
Understanding Switching Loops	4	Ethernet Switch Features	116
Choosing and Configuring a Root Switch	4	Ethernet Switch Features	116
Configuring Switched VLANs and Trunk Ports	4	Ethernet Switch Features	116
Configuring Port Security	4	Ethernet Switch Features	116
Spanning Tree Port Identification	4	Ethernet Switch Features	116
Connecting to the Router's Console Port	6	Routing Traffic	189
Configuring Hostname and Password	6	Routing Traffic	189
Configuring an Ethernet Interface on a Router	6	Routing Traffic	189
Using the Show Run Command to Read the Current Configuration	6	Routing Traffic	189
'show' Commands Useful for Troubleshooting Common Router Problems	6	Routing Traffic	189
Connecting Two Routers to Each Other	6	Routing Traffic	189
Verifying a Router-to-Router Connection with Cisco Discovery Protocol	6	Routing Traffic	189
Saving the Router or Switch Configuration	6	Routing Traffic	189
Static and Default Routing	6	Routing Traffic	189
Configuring InterVLAN Routing	6	Routing Traffic	189
Configuring Dynamic Routing	6	Routing Traffic	189
Reading a Routing Table	6	Routing Traffic	189

2.2 Given a scenario, install and configure a wireless network

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Configure Small Office/Home Office Router for Basic Operation	8	Connecting Wirelessly	257
Matching Antenna Types	8	Introducing Wireless LANs	258
Wireless Antenna Placement	8	Deploying Wireless LANs	268

2.3 Explain the purpose and properties of DHCP

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Using a Static Address on a Small Office / Home Office Router	5	Assigning IPv4 Addresses	153
DHCP Technology	5	Assigning IPv4 Addresses	153
Details of DHCP Client Address Configuration Process	5	Assigning IPv4 Addresses	153

2.4 SOHO Router Network User Security

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Configuring Small Office/Home Office Router- Network User Security Settings	12	Securing a Network	385
Manually Configuring Wireless Signals on a Small Office/Home Office Router	8	Deploying Wireless LANs	268
Configuring a Wireless USB Network Adapter to Connect to a Wireless Router	8	Deploying Wireless LANs	268

2.5 Given a scenario, troubleshoot common wireless problems

Lab Title	Book Chapter	Book Heading	Book Page Number
Using NetSh to Scan for Wireless Networks	13	Wireless Troubleshooting	452

2.6 Given a set of requirements, plan and implement a basic SOHO network

Lab Title	Book Chapter	Book Heading	Book Page Number
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Configuring a Network Adapter with an IPv6 Address	5	IP Version 6	178
Configuring Access Restrictions on a Small Business/Home Office Router	12	Securing a Network	385
Configuring Port Forwarding to Local Services on a Small Office/Home Office Router	6	Address Translation	204
Configuring Access Restrictions on a Small Business/Home Office Router	12	Securing a Network	385
Address Translation Terminology	12	Securing a Network	385
Configuring a Connection to a Network Printer	1	Introducing Computer Networks	3
Mapping a Network Drive to the Desktop	1	Introducing Computer Networks	3
Configuring a Client Network Adapter with an IPv4 Address	5	IPv4 Addressing	147

Domain 3.0: Network Media and Topologies

3.1 Categorize standard media types and associated properties

Lab Title	Book Chapter	Book Heading	Book Page Number
Media Types and Properties	3	Media	60
Matching Transceiver Port functions for Category 5 Cabling	3	Media	60
Matching Cable to Wire Length	4	Principles of Ethernet	108
Create a Straight Cable and Test It	3	Media	60
Create a Crossover Cable	3	Media	60
Create a Console Cable	3	Media	60

3.2 Categorize standard connector types based on network media

Lab Title	Book Chapter	Book Heading	Book Page Number
Making a Direct Connection Between Two PCs	3	Media	60
Verify a Data Link Connection from a Computer to a Network	4	Principles of Ethernet	108
Demonstrate Appropriate Wired Network Connections Between Device Pairs	3	Media	60
Drag and Drop Appropriate Cables into a Topology	3	Media	60

3.3 Compare and contrast different wireless standards

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Fiber Optic Cabling, Connectors, and Uses	3	Media	60
Connecting Campus Area Distribution Facilities to Each Other	3	Media	60
Matching Wireless Standards and Terminology	8	Introducing Wireless LANs	258

3.4 Compare WAN technology types and properties

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Matching DSL types with descriptions	7	WAN Technologies	227
Matching Broadband Terminology with Descriptions	7	WAN Technologies	227
Wide Area Networking Technology	7	WAN Technologies	227

3.5 Describe different Network topologies

Lab Title	Book Chapter	Book Heading	Book Page Number
Network Topologies	1	Networks Defined by Topology	9
Network Types	1	Networks Defined by Topology	9

3.6 Given a scenario, troubleshoot common physical connectivity problems

Lab Title	Book Chapter	Book Heading	Book Page Number
Identify Common Cat5 Wiring Problems	13	Physical Layer Troubleshooting	443

3.7 Compare and contrast different LAN technologies

Lab Title	Book Chapter	Book Heading	Book Page Number
IEEE Local Area Network Wire Standards	4	Principles of Ethernet	108
IEEE LAN Standards and Technologies	4	Understanding Ethernet	107

3.8 Identify components of wiring distribution

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Components of Wiring Distribution Systems	7	WAN Technologies	227
Network Infrastructure Component Placement	3	Media	60

Domain 4.0: Network Management

4.1 Explain the purpose and function of various network appliances

Lab Title	Book Chapter	Book Heading	Book Page Number
Functions of Network Appliances/Management Software	3	Specialized Network Devices	86

4.2 Explain the purpose and function of various network appliances

Lab Title	Book Chapter	Book Heading	Book Page Number
Hardware Tools and Functions	1	Maintenance Tools	358
Use of the ipconfig Command with Available Options	10	Windows Commands	316

4.3 Given a Scenario, use appropriate software tools to troubleshoot connectivity issues

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Using ipconfig to Discover Network Settings	10	Windows Commands	316
Using ping to Troubleshoot Connectivity	10	Windows Commands	316
Using Extended ping (Command Switches) to Troubleshoot Connectivity	10	Windows Commands	316
Using ARP to Discover a MAC Address	10	Windows Commands	316
Using tracert to Troubleshoot Connectivity	10	Windows Commands	316
Using netstat to Troubleshoot Connectivity	10	Windows Commands	316
Using ipconfig, ping, arp, and tracert Together to Troubleshoot Connectivity	10	Windows Commands	316
Using the route print Command	10	Windows Commands	316
Using Basic Linux Troubleshooting Commands	10	UNIX Commands	336
Identifying Troubleshooting Commands to Use for Various Tasks	10	Using Command-Line Utilities	315

Matching Command Output to Commands	10	Windows Commands	316
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4.4 Given a scenario, use the appropriate network monitoring resource to analyze traffic

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Understanding SNMP Functions and Terminology	11	Monitoring Resources and Reports	369
Identifying Network Monitoring Databases and Logs Based on Need	11	Monitoring Resources and Reports	369

4.5 Describe the purpose of configuration management documentation

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Network Documentation	11	Configuration Management	367

4.6 Explain different methods and rationales for network performance optimization

Lab Title	Book Chapter	Book Heading	Book Page Number
Identifying Network Performance Terminology	9	Optimizing Network Performance	285

Domain 5.0: Network Security

5.1 Given a Scenario, implement appropriate security measures

Lab Title	Book Chapter	Book Heading	Book Page Number
Security Terminology and Descriptions	12	Securing a Network	385
Wireless Security Terminology	8	Securing Wireless LANs	268
Wireless Security Terminology	8	Securing Wireless LANs	268

5.2 Explain the methods of network access security

Lab Title	Book Chapter	Book Heading	Book Page Number
Remote Access Terminology	7	WAN Technologies	227
VPN Terminology	12	Virtual Private Networks	417
Tunneling Terminology	12	Virtual Private Networks	417

5.3 Explain methods of user authentication

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Matching Authentication Terminology with Descriptions	12	Remote Access Security	411
Password and Authentication Methodology	12	Remote Access Security	411
Creating Network Users on a Domain Controller	1	Introducing Computer Networks	3

5.4 Explain common threats, vulnerabilities, and mitigation techniques

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Secure Protocols vs. Unsecure Protocols	2	The TCP/IP Stack	47

Creating a Local Login Database to Secure Access to a Router	12	Securing a Network	385
Network Vulnerabilities – the Hacker and Network Admin Perspectives	12	Security Fundamentals	386
Types of Network Threats and Attacks	12	Security Fundamentals	386
Network Protection Mechanisms	12	Securing a Network	385
Firewall Terminology	12	Firewalls	413
Folder Sharing and Security	12	Securing a Network	385
Resource Security Through a Domain Controller	12	Securing a Network	385
Network Protection Mechanisms	11	Managing a Network	357
Using Encrypting File System (EFS) to Encrypt Data Files	12	Securing a Network	385

5.5 Given a scenario, install and configure a basic firewall

Lab Title	Book Chapter	Book Heading	Book Page Number
Configuring a VPN Client	12	Virtual Private Networks	417
Small Office/Home Office Router: Wireless MAC Access Security	8	Securing Wireless LANs	273

5.6 Categorize different types of network security appliances and methods

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Security Appliance Terminology and Methods	12	Defending Against Attacks	402