APPENDIX G

Exam Topics Cross-Reference

This appendix lists the exam topics associated with the CCNA 200-301 exam. Cisco lists the exam topics on its website. Even though changes to the exam topics are rare, you should always review those exam topics for any updates; check www.cisco.com/go/certifications and navigate to the correct exam.

Cisco organizes each list of exam topics by domains, which are major topic areas. Cisco states the percentage of the exam that should come from each domain, so you get some idea of the areas of importance. Traditionally, the score report you receive after taking the exam shows your percentage score in each domain.

This appendix includes two separate types of indices to exam topics:

- **CCNA 200-301 Exam Topic Order:** This section lists the CCNA 200-301 exam topics in the same order Cisco lists them on its website, with a list of associated book chapters. This first list shows a cross-reference from each exam topic to the chapters that include at least some material about each topic.
- **Book Chapter Order Versus CCNA 200-301 Exam Topics:** This lists the same CCNA 200-301 exam topics but indexed by chapter instead of exam topic. This section lists the chapters in this book, along with the exam topics that the chapter includes. This section basically relists the kind of information found on the first page of each chapter, just in condensed form in one place.

CCNA 200-301 Exam Topic Order

The CCNA 200-301 exam includes six major topic areas (domains), each with a percentage listed. Table G-1 lists the domains and their percentages.

Table G-1 CCNA 200-301 Exam Topic Domains

Domain	Percentage
Domain 1: Network Fundamentals	20%
Domain 2: Network Access	20%
Domain 3: IP Connectivity	25%
Domain 4: IP Services	10%
Domain 5: Security Fundamentals	15%
Domain 6: Automation and Programmability	10%

Tables G-2 through G-7 list the exam topics within each of the six domains. Note that the *CCNA 200-301 Official Cert Guide, Volume 1*, covers some of the exam topics, while this book covers the rest. These tables show the chapters in each book that cover each exam topic.

Table G-2 CCNA 200-301 Domain 1 Exam Topics (Network Fundamentals)

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
1.1 Explain the Role and function of Network Components	2, 3, 5, 7, 26	5, 16, 17
1.1.a Routers	3, 15	
1.1.b L2 and L3 Switches	2, 5, 7	
1.1.c Next-generation firewalls and IPS		5
1.1.d Access points	26	
1.1.e Controllers (Cisco DNA Center and WLC)	29	17
1.1.f Endpoints		16
1.1.g Servers		16
1.2 Describe characteristics of network topology architectures	2, 3	13, 14, 15, 16
1.2.a 2 tier		13
1.2.b 3 tier		13
1.2.c Spine-leaf		16
1.2.d WAN	3	14
1.2.e Small office/home office (SOHO)	2, 15	13
1.2.f On-premises and cloud		15
1.3 Compare physical interface and cabling types	1, 2	13
1.3.a Single-mode fiber, multimode fiber, copper	1, 2	
1.3.b Connections (Ethernet shared media and point-to-point)	1, 2	
1.3.c Concepts of PoE		13
1.4 Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)	7	
1.5 Compare TCP to UDP		1
1.6 Configure and verify IPv4 addressing and subnetting	6, 11, 12, 13, 14, 15, 17, 22	
1.7 Describe the need for private IPv4 addressing	11, 16	
1.8 Configure and verify IPv6 addressing and prefix	23, 24	
1.9 Compare IPv6 address types	23, 24	
1.9.a Global unicast	23, 24	
1.9.b Unique local	23, 24	
1.9.c Link local	24	
1.9.d Anycast	24	
1.9.e Multicast	24	
1.9.f Modified EUI 64	24	

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
1.10 Identify IP parameters for Client OS (Windows, Mac OS, Linux)		7
1.11 Describe wireless principles	26	
1.11.a Nonoverlapping Wi-Fi channels	26	
1.11.b SSID	26	
111.c RF	26	
1.11.d Encryption	28	
1.12 Explain virtualization fundamentals (virtual machines)		15
1.13 Describe switching concepts	5, 8	
1.13.a MAC learning and aging	5, 8	
1.13.b Frame switching	5, 8	
1.13.c Frame flooding	5, 8	
1.13.d MAC address table	5, 8	

Table G-3 CCNA 200-301 Domain 2 Exam Topics (Network Access)

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
2.1 Configure and verify VLANs (normal range) spanning multiple switches	8	
2.1.a Access ports (data and voice)	8	
2.1.b Default VLAN	8	
2.1.c Connectivity	8	
2.2 Configure and verify interswitch connectivity	8	
2.2.a Trunk ports	8	
2.2.b 802.1Q	8	
2.2.c Native VLAN	8	
2.3 Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP)		9
2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)	8, 9, 10, 17	
2.5 Describe the need for and basic operations of Rapid PVST+ Spanning Tree Protocol and identify basic operations	5, 9, 10	
2.5.a Root port, root bridge (primary/secondary), and other port names	9, 10	
2.5.b Port states (forwarding/blocking)	9, 10	
2.5.c PortFast benefits	9, 10	
2.6 Compare Cisco Wireless Architectures and AP modes	27	

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
2.7 Describe physical infrastructure connections of WLAN components (AP, WLC, access/trunk ports, and LAG)	29	
2.8 Describe AP and WLC management access connections (Telnet, SSH, HTTP, HTTPS, console, and TACACS+/RADIUS)	29	
2.9 Configure the components of a wireless LAN access for client connectivity using GUI only such as WLAN creation, security settings, QoS profiles, and advanced WLAN settings	29	

Table G-4 CCNA 200-301 Domain 3 Exam Topics (IP Connectivity)

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
3.1 Interpret the components of routing table	16	
3.1.a Routing protocol code	16	
3.1.b Prefix	16	
3.1.c Network mask	16	
3.1.d Next hop	16	
3.1.e Administrative distance	16	
3.1.f Metric	16	
3.1.g Gateway of last resort	16	
3.2 Determine how a router makes a forwarding decision by default	16	
3.2.a Longest match	16	
3.2.b Administrative distance	16, 19, 20	
3.2.c Routing protocol metric	19, 20	
3.3 Configure and verify IPv4 and IPv6 static routing	16, 18, 25	
3.3.a Default route	16, 18, 25	
3.3.b Network route	16, 18, 25	
3.3.c Host route	16, 18, 25	
3.3.d Floating static	16, 18, 25	
3.4 Configure and verify single area OSPFv2	19, 20, 21	
3.4.a Neighbor adjacencies	19, 20, 21	
3.4.b Point-to-point	19, 20, 21	
3.4.c Broadcast (DR/BDR selection)	19, 20, 21	
3.4.d Router ID	19, 20, 21	
3.5 Describe the purpose of First Hop Redundancy Protocol		12

Table G-5 CCNA 200-301 Domain 4 Exam Topics (IP Services)

Exam Topics	Vol 1 Chapter(s)	Vol 2 Chapter(s)
4.1 Configure and verify inside source NAT using static and pools		10
4.2 Configure and verify NTP operating in a client and server mode		9
4.3 Explain the role of DHCP and DNS within the network		1, 7
4.4 Explain the function of SNMP in network operations		12
4.5 Describe the use of syslog features including facilities and levels		9
4.6 Configure and verify DHCP client and relay	6	7
4.7 Explain the per-hop behavior (PHB) for QoS such as classification, marking, queuing, congestion, policing, shaping		11
4.8 Configure network devices for remote access using SSH	6	5
4.9 Describe the capabilities and function of TFTP/FTP in the network		12

Table G-6 CCNA 200-301 Domain 5 Exam Topics (Security Fundamentals)

Exam Topics	Vol 1 Chapter(s)	Vol 2 Chapter(s)
5.1 Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)		4
5.2 Describe security program elements (user awareness, training, and physical access control)		4
5.3 Configure device access control using local passwords	6	5
5.4 Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics)		4
5.5 Describe remote access and site-to-site VPNs		14
5.6 Configure and verify access control lists		2, 3
5.7 Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)		6, 8
5.8 Differentiate authentication, authorization, and accounting concepts		4
5.9 Describe wireless security protocols (WPA, WPA2, and WPA3)	28	
5.10 Configure WLAN using WPA2 PSK using the GUI	29	

Table G-7 CCNA 200-301 Domain 6 Exam Topics (Automation and Programmability)

Exam Topics	Vol 1 Chapter(s)	Vol 2 Chapter(s)
6.1 Explain how automation impacts network management		16
6.2 Compare traditional networks with controller-based networking		16
6.3 Describe controller-based and software-defined architectures (overlay, underlay, and fabric)		16, 17
6.3.a Separation of control plane and data plane		16, 17
6.3.b Northbound and southbound APIs		16, 17
6.4 Compare traditional campus device management with Cisco DNA Center enabled device management		17
6.5 Describe characteristics of REST-based APIs (CRUD, HTTP verbs, and data encoding)		18
6.6 Recognize the capabilities of configuration management mechanisms Puppet, Chef, and Ansible		19
6.7 Interpret JSON encoded data		18

Book Chapters, with Exam Topics Covered in Each

Cisco organizes its exam topics based on the outcome of your learning experience, which is typically not a reasonable order for building the content of a book or course. This section lists this book's chapters in sequence, with the exam topics covered in each chapter.

Book Chapter	Exam Topics Covered
Part I: IP Access Control Lists	
Chapter 1: Introduction to TCP/IP Transport and Applications	**1.0 Network Fundamentals** 1.5 Compare TCP to UDP **4.0 IP Services** 4.3 Explain the role of DHCP and DNS in the network
Chapter 2: Basic IPv4 Access Control Lists	**5.0 Security Fundamentals** 5.6 Configure and verify access control lists
Chapter 3: Advanced IPv4 Access Control Lists	**5.0 Security Fundamentals** 5.6 Configure and verify access control lists

Book Chapter	Exam Topics Covered
Part II: Security Services	
Chapter 4: Security Architectures	**5.0 Security Fundamentals** 5.1 Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques) 5.2 Describe security program elements (user awareness, training, and physical access control) 5.4 Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics) 5.8 Differentiate authentication, authorization, and accounting concepts
Chapter 5: Securing Network Devices	**1.0 Network Fundamentals** 1.1 Explain the Role of Network Components 1.1.c Next-generation firewalls and IPS **4.0 IP Services** 4.8 Configure network devices for remote access using SSH **5.0 Security Fundamentals** 5.3 Configure device access control using local passwords
Chapter 6: Implementing Switch Port Security	**5.0 Security Fundamentals** 5.7 Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)
Chapter 7: Implementing DHCP	**1.0 Network Fundamentals** 1.10 Identify IP parameters for Client OS (Windows, Mac OS, Linux) **4.0 IP Services** 4.3 Explain the role of DHCP and DNS within the network 4.6 Configure and verify DHCP client and relay
Chapter 8: DHCP Snooping and ARP Inspection	**5.0 Security Fundamentals** 5.7 Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)

Book Chapter	Exam Topics Covered
Part III: IP Services	
Chapter 9: Device Management Protocols	**2.0 Network Access** 2.3 Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP) **4.0 IP Services** 4.2 Configure and verify NTP operating in a client and server mode 4.5 Describe the use of syslog features including facilities and levels
Chapter 10: Network Address Translation	**4.0 IP Services** 4.7 Configure and verify inside source NAT using static and pools
Chapter 11: Quality of Service (QoS)	**4.0 IP Services** 4.7 Explain the forwarding per-hop behavior (PHB) for QoS such as classification, marking, queuing, congestion, policing, shaping
Chapter 12: Miscellaneous IP Services	**3.0 IP Connectivity** 3.5 Describe the purpose of First Hop Redundancy Protocol **4.0 Infrastructure Services** 4.4 Explain the function of SNMP in network operations 4.9 Describe the capabilities and function of TFTP/FTP in the network
Part IV: Network Architecture	
Chapter 13: LAN Architecture	**1.0 Network Fundamentals** 1.2 Describe characteristics of network topology architectures 1.2.a 2 tier 1.2.b 3 tier 1.2.e Small office/home office (SOHO) 1.3 Compare physical interface and cabling types 1.3.c Concepts of PoE
Chapter 14: WAN Architecture	**1.0 Network Fundamentals** 1.2 Describe the characteristics of network topology architecture 1.2.d WAN **5.0 Security Fundamentals** 5.5 Describe remote access and site-to-site VPNs

Book Chapter	Exam Topics Covered
Chapter 15: Cloud Architecture	**1.0 Network Fundamentals** 1.2 Describe the characteristics of network topology architectures 1.2.f On-premises and cloud 1.12 Explain virtualization fundamentals (virtual machines)
Part V: Network Automation	
Chapter 16: Introduction to Controller-Based Networking	**6.0 Automation and Programmability** 6.1 Explain how automation impacts network management 6.2 Compare traditional networks with controller-based networking 6.3 Describe controller-based and software-defined architectures (overlay, underlay, and fabric) 6.3.a Separation of control plane and data plane 6.3.b Northbound and southbound APIs
Chapter 17: Cisco Software-Defined Access	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components 1.1.e Controllers (Cisco DNA Center and WLC) **6.0 Automation and Programmability** 6.1 Explain how automation impacts network management 6.2 Compare traditional networks with controller-based networking 6.3 Describe controller-based and software-defined architectures (overlay, underlay, and fabric)
Chapter 18: Understanding REST and JSON	**6.0 Automation and Programmability** 6.5 Describe characteristics of REST-based APIs (CRUD, HTTP verbs, and data encoding) 6.7 Interpret JSON encoded data
Chapter 19: Ansible, Puppet, and Chef	**6.0 Automation and Programmability** 6.6 Recognize the capabilities of configuration mechanisms Puppet, Chef, and Ansible