2024 CCNA v1.1 (200-301)

Complete CCNA (200-301 v1.1) training for new network admins. Learn everything required in the first year on the job with expert-led online courses from CBT Nuggets.

CBT Nuggets course material →

STUDY PLAN

WEEK 1

Use Models to Understand IP Networking		4 min.
☐	IP Networking Overview	4 min.
☐	Network Models	4 min.
☐	Application and Transport Layers	10 min.
☐	Layer 3, Network Layer	10 min.
☐	Layer 2, Data Link Layer	8 min.
☐	Layer 1, Physical Layer	5 min.
☐	Validation	22 min.
Understand the Role of a Layer 2 Switch		9 min.
☐	Layer 2 Switching Overview	9 min.
☐	What Does a Layer 2 Switch Look Like?	9 min.
☐	Hosts and Switches Need to Learn MAC Addresses	5 min.
☐	How IPv4 Hosts Learn MAC Addresses	10 min.
☐	How IPv4 Hosts Learn MAC Addresses (router side)	7 min.
☐	Viewing the MAC Address Table on a Layer 2 Switch	5 min.
☐	Validation	21 min.
Understand the Role of a Layer 3 Router		1 min.
☐	Intro to understanding a L3 router	1 min.
☐	IP Routing Overview	15 min.
☐	What does a Router Look Like?	6 min.
☐	How L3 Routers Learn About Networks	5 min.
☐	Directly Connected Networks	4 min.
☐	Static Routes	6 min.
☐	Dynamic Routing Protocols	5 min.
☐	Validation	21 min.

WEEK 2

Use APs, NGFWs, and Controllers		8 min.

- [ ] Intro to Firewalls, APs, and Controllers 8 min.
- [ ] Wireless Access Points (APs) 8 min.
- [ ] Power over Ethernet (PoE) Overview 4 min.
- [ ] Providing PoE From a Cisco Switch 10 min.
- [ ] Controllers for Centralized Management 7 min.
- [ ] WLC as an AP Controller 11 min.
- [ ] Next Generation Firewalls (NGFWs) 6 min.
- [ ] Validation 5 min.

Use Layer 4 Transport Protocols 1 min.

- [ ] Intro to Layer 4 Transport Protocols 1 min.
- [ ] Layer 4 Transport Protocols Overview 11 min.
- [ ] TCP and UDP Port Numbers 10 min.
- [ ] Verifying the L4 Protocols in Use 11 min.
- [ ] TCP vs UDP 7 min.
- [ ] Verifying TCP and UDP Behavior 7 min.
- [ ] Sequence of Events On a Client Computer 4 min.
- [ ] Validation 21 min.

WEEK 3

Describe the Hierarchical Network Model 5 min.

- [ ] The Need for a Model 5 min.
- [ ] Basic Topologies 10 min.
- [ ] Modular Hierarchy and Scaling 6 min.
- [ ] The Hierarchical Network Model 8 min.
- [ ] Enterprise Campus Networks 8 min.
- [ ] Validation 3 min.

Describe the Hierarchical Network Blocks 3 min.

- [ ] Intro 3 min.
- [ ] The Access Block 6 min.
- [ ] The Distribution Block 5 min.
- [ ] The Core Block 5 min.
- [ ] The Aggregation Block 7 min.
- [ ] The WAN Block 6 min.
- [ ] The Internet Block 5 min.
- [ ] Collapsed Architectures 6 min.
- [ ] Validation 4 min.

Describe Network Topology Architectures 2 min.

- [ ] Intro 2 min.
- [ ] Three-Tier Architectures 6 min.
- [ ] Two-Tier Architectures 6 min.
- [ ] Small Office - Home Office (SOHO) Architectures 8 min.
- [ ] Spine-Leaf Architectures 8 min.
- [ ] Cloud and On-Premise Architectures 11 min.
- [ ] Validation 5 min.

WEEK 4

Describe Wide Area Network (WAN) Technologies 2 min.

- [ ] Intro 2 min.
- [ ] Wide Area Networks (WANs) 6 min.
- [ ] Leased Lines 11 min.
- [ ] Ethernet Switching and Metro Ethernet 8 min.
- [ ] MPLS 10 min.
- [ ] Validation 5 min.

Describe WAN Topologies and Connectivity 2 min.

- [ ] Intro 2 min.
- [ ] WAN Topologies 5 min.

- [ ] Sharing Bandwidth and SLAs 8 min.
- [ ] Lit and Dark Fiber 10 min.
- [ ] Wireless Bridging 7 min.
- [ ] L2 WAN Links 5 min.
- [ ] L3 WAN Links 5 min.
- [ ] Validation 5 min.

Identify Copper Cabling and Termination 2 min.

- [ ] Intro 2 min.
- [ ] Signals Sent over Copper 9 min.
- [ ] Shielded and Unshielded Cables 4 min.
- [ ] Ethernet Cable Types 7 min.
- [ ] Plenum Cables 4 min.
- [ ] Opening an Ethernet Cable 4 min.
- [ ] Ethernet Pinouts 5 min.
- [ ] RJ45 Connector Termination 7 min.
- [ ] Validation 3 min.

Identify Copper Interface Transmissions 3 min.

- [ ] Intro 3 min.
- [ ] Transmission Pairs 9 min.
- [ ] Crossover Cables 6 min.
- [ ] Crossover Cable Pinouts 5 min.
- [ ] Console/Rollover Cables 5 min.
- [ ] T1/E1 and T3/E3 Cables 5 min.
- [ ] RJ45 Receptacle Termination 8 min.
- [ ] Validation 4 min.

WEEK 5

Identify Fiber Optics and Cables 2 min.

- [ ] Intro 2 min.
- [ ] Optics and Cables 8 min.
- [ ] Optical Transmissions 8 min.
- [ ] Fiber Connection Demo 6 min.
- [ ] Signal Loss 5 min.
- [ ] Single-mode Fiber (SMF) and Multimode Fiber (MMF) 9 min.
- [ ] Fiber Cable Demo 3 min.
- [ ] Validation 4 min.

Identify Transceiver and Cabling Types 2 min.

- [ ] Intro 2 min.
- [ ] Long Range Transceivers 9 min.
- [ ] Short Range Transceivers 7 min.
- [ ] Copper Transceivers 2 min.
- [ ] Transceiver Data Sheets 10 min.
- [ ] Fiber Connectors 6 min.
- [ ] Infrastructure Fiber 8 min.
- [ ] Validation 4 min.

Identify Cisco Transceivers and Compatibility 2 min.

- [ ] Intro 2 min.
- [ ] SFP Technology 10 min.
- [ ] QSFP Technology 8 min.
- [ ] SFP56 and QSFP56 3 min.
- [ ] QSFP-DD and QSFP-800DD 4 min.
- [ ] Twinax (DACs) and Active Optical Cables (AOCs) 6 min.
- [ ] SFP and QSFP Data Sheets 7 min.
- [ ] SFP Demo 5 min.
- [ ] Switch Configurations 4 min.

- [ ] Validation 3 min.

WEEK 6

Explain Ethernet Structure and Transmissions 2 min.

- [ ] Intro 2 min.
- [ ] Bits, Bytes, and Frames 8 min.
- [ ] Ethernet Standards 7 min.
- [ ] Layer 2 Ethernet Frame Structure 9 min.
- [ ] Ethernet Transmissions 7 min.
- [ ] Half-Duplex and Collisions 5 min.
- [ ] Validation 3 min.

Explain Ethernet Communications 1 min.

- [ ] Intro 1 min.
- [ ] Carrier Sense Multiple Access - Collision Detection (CSMA/CD) 9 min.
- [ ] Late Collisions 6 min.
- [ ] Collision Domains 7 min.
- [ ] Ethernet Switches 6 min.
- [ ] Half-duplex and Full-duplex Operations 9 min.
- [ ] Ethernet Broadcasts 9 min.
- [ ] Validation 3 min.

Configure Ethernet Interface Speed and Duplex 2 min.

- [ ] Intro 2 min.
- [ ] Interface Speeds 9 min.
- [ ] Confirming Speed Options on Data Sheets 8 min.
- [ ] Auto-Negotiation 7 min.
- [ ] Speed and Duplex Considerations 5 min.
- [ ] Configure Interface Speed and Duplex 7 min.
- [ ] Validation 6 min.

WEEK 7

Identify Interface and Cable Issues 1 min.

- [ ] Intro 1 min.
- [ ] L1 Interface Status 6 min.
- [ ] L2 Interface Status 5 min.
- [ ] Err-Disabled Status 5 min.
- [ ] Speed Mismatches 5 min.
- [ ] Duplex Mismatches 12 min.
- [ ] Runts and Giants 8 min.
- [ ] CRC Failures 5 min.
- [ ] Validation 3 min.

Understand IPv4 Addressing 1 min.

- [ ] Intro to IPv4 Addressing 1 min.
- [ ] IPv4 Addressing Overview 10 min.
- [ ] IPv4 Dotted Decimal Addresses 4 min.
- [ ] Numbering Systems 5 min.
- [ ] Converting Binary to Decimal 3 min.
- [ ] Converting Decimal to Binary 4 min.
- [ ] Unveiling the Mask 8 min.
- [ ] Configuring an IP Address on a Router 7 min.
- [ ] Validation 14 min.

Configure IPv4 Private Addresses 1 min.

- [ ] Intro to Private IPv4 Addresses 1 min.
- [ ] IPv4 Classes 8 min.
- [ ] Private (RFC 1918) IPv4 Addresses 8 min.
- [ ] Private IPv4 Address Planning 10 min.
- [ ] Configuring L3 Router 1 9 min.
- [ ] Configuring L3 Router 2 6 min.

- [ ] Configure the Client PC and Default G/W 8 min.
- [ ] Validation 18 min.

WEEK 8

Use IPv4 Subnetting 1 min.

- [ ] Intro to IPv4 Subnetting 1 min.
- [ ] IPv4 Subnetting Overview 4 min.
- [ ] Making the Mask Longer 8 min.
- [ ] How Many Bits to Take and the Finger Game 10 min.
- [ ] Identify the New Subnet IDs 8 min.
- [ ] Ranges for Subnets 6 min.
- [ ] Calculating the Number of Hosts per Subnet 3 min.
- [ ] Subnetting Scenario 9 min.
- [ ] Implementing our IP Subnet Addressing 6 min.
- [ ] Validation 18 min.

Use IPv4 Variable Length Subnets Masks (VLSM) 1 min.

- [ ] Intro to Use IPv4 Variable Length Subnet Masks 1 min.
- [ ] Why VLSM is Needed 10 min.
- [ ] The Starting Point for VLSM Calculations 10 min.
- [ ] Calculating the Rest of the Subnet IDs and Masks with VLSM 6 min.
- [ ] VLSM Example Across Octets 15 min.
- [ ] Creating a New VLSM-Based IPv4 Subnetting Plan 9 min.
- [ ] Configuring the IPv4 VLSM on Cisco Routers 10 min.
- [ ] Validation 22 min.

WEEK 9

Use Additional IPv4 Addressing 1 min.

- [ ] Intro to Additional IPv4 Addresses 1 min.
- [ ] Additional IPv4 Address Types 11 min.
- [ ] Unicast Addresses 8 min.
- [ ] Using Loopbacks 8 min.
- [ ] IPv4 Anycast Addressing 7 min.
- [ ] APIPA Link Local IPv4 Address 6 min.
- [ ] Broadcast Addresses, L3 and L2 9 min.
- [ ] Multicast 8 min.
- [ ] Validation 18 min.

Understand IPv6 Addressing 1 min.

- [ ] Intro to IPv6 Addressing 1 min.
- [ ] Compare IPv6 to IPv4 10 min.
- [ ] Shortcuts for Writing Out IPv6 Addresses 5 min.
- [ ] IPv6 Address Types 14 min.
- [ ] EUI-64 for the Host ID 10 min.
- [ ] Link-Local Addresses 9 min.
- [ ] Multicast in IPv6 7 min.
- [ ] Validation 16 min.

WEEK 10

Configure IPv6 Addressing 1 min.

- [ ] Intro to Configuring IPv6 Addressing 1 min.
- [ ] Game Plan for IPv6 Addressing 7 min.
- [ ] Configure R1 5 min.
- [ ] Configure R2 7 min.
- [ ] Configure R3 6 min.
- [ ] Configure PC-1, 2, 3 8 min.
- [ ] Configure Windows Server DC-NUG 5 min.
- [ ] Configure the Client_PC 13 min.
- [ ] Validation 12 min.

Explain Virtualization Fundamentals 1 min.

- [ ] Intro 1 min.
- [ ] Servers and Applications 7 min.
- [ ] Bare Metal and Hypervisors 9 min.
- [ ] Data Center Vendors 3 min.
- [ ] Virtual Machines (VMs) 7 min.
- [ ] Virtual Switching 5 min.
- [ ] Network Function Virtualization 6 min.
- [ ] Data Centers and Cloud 8 min.
- [ ] Validation 3 min.

Understand L2 Switch Forwarding 1 min.

- [ ] Intro 1 min.
- [ ] Layer 2 switching Overview 13 min.
- [ ] Building the MAC Address-table 11 min.
- [ ] MAC Address Aging Time 5 min.
- [ ] Forwarding to a Known MAC Address 7 min.
- [ ] Forwarding a broadcast to all other ports 8 min.
- [ ] Flooding Unknown Unicast Frames 9 min.
- [ ] Layer 2 Switches Don't Modify MAC Addresses 8 min.
- [ ] Validation 23 min.

WEEK 11

Understand L2 VLANs 1 min.

- [ ] Intro 1 min.
- [ ] VLAN Overview 12 min.
- [ ] VLANs and IP Subnets 8 min.
- [ ] Creating New VLANs 12 min.
- [ ] Update Configurations, Based on Updated Topology 12 min.
- [ ] Validation 21 min.

Configure Inter VLAN Routing 1 min.

- [ ] Intro 1 min.
- [ ] Inter VLAN Routing Overview 9 min.
- [ ] Inter VLAN Routing with 1 External Router and 2 Physical Interfaces 8 min.
- [ ] Inter VLAN Routing Using Router on a Stick (ROAS) 9 min.
- [ ] ROAS Plan and SW1 Configuration 8 min.
- [ ] ROAS R1 config 11 min.
- [ ] Validation 27 min.

WEEK 12

Configure a Multi-Layer Switch 1 min.

- [ ] Intro 1 min.
- [ ] Connecting to the CLI Using a Console Cable 9 min.
- [ ] Initial Configurations for a Switch 11 min.
- [ ] Configuring a Switched Virtual Interface (SVI) for Management 13 min.
- [ ] Connecting to a Switch IP Address Through a VTY Line 8 min.
- [ ] Converting a Physical Layer 2 Switchport to a L3 Routed Port 6 min.
- [ ] Enabling IPv4 Routing on a Multi-Layer Switch 5 min.
- [ ] Using L3 SVIs for IP Routing on a Multi-Layer Switch 11 min.
- [ ] Validation 15 min.

Configure Cisco 802.1Q Trunking 1 min.

- [ ] Intro 1 min.
- [ ] 802.1 Trunking Overview 8 min.
- [ ] Configure Trunking 11 min.
- [ ] The Cisco Native VLAN 14 min.
- [ ] Controlling Which VLANs Are Allowed on the Trunks 8 min.
- [ ] Inter VLAN Routing 10 min.
- [ ] Validation 17 min.

WEEK 13

Configure Cisco DTP — 1 min.

- [ ] Intro — 1 min.
- [ ] Dynamic Trunking Protocol (DTP) Overview — 12 min.
- [ ] Using DTP — 10 min.
- [ ] Disabling DTP — 7 min.
- [ ] Confirm Access Ports and SVIs — 7 min.
- [ ] Validation — 15 min.

Configure Cisco VTP — 2 min.

- [ ] Intro — 2 min.
- [ ] VTP Overview — 16 min.
- [ ] Preparing 802.1Q Trunks — 4 min.
- [ ] Configure a VTP Domain — 11 min.
- [ ] VTP Client and Transparent Modes — 5 min.
- [ ] Testing with SVIs — 6 min.
- [ ] No VLAN, No Forwarding — 7 min.
- [ ] Validation — 20 min.

WEEK 14

Configure Cisco EtherChannel — 1 min.

- [ ] Intro — 1 min.
- [ ] EtherChannel, The Big Picture — 6 min.
- [ ] EtherChannel Protocol Options — 12 min.
- [ ] Layer 2 EtherChannel Access Port — 21 min.
- [ ] L2 EtherChannel Trunk Port — 12 min.
- [ ] L3 EtherChannel Routed Interface — 14 min.
- [ ] Validation — 19 min.

Understand Cisco STP — 1 min.

- [ ] Intro — 1 min.
- [ ] STP Overview — 9 min.
- [ ] Cisco and Spanning Tree — 8 min.
- [ ] Electing a Root Bridge for Spanning Tree — 10 min.
- [ ] Port Roles and States — 15 min.
- [ ] Non-Root Bridges Get 1 Root Port — 13 min.
- [ ] Designated Ports and Ports That Will Block — 10 min.
- [ ] Validation — 19 min.

WEEK 15

Configure Cisco STP — 1 min.

- [ ] Intro — 1 min.
- [ ] STP Recap — 9 min.
- [ ] Spanning Tree Modifications We May Want to Use — 14 min.
- [ ] Configure PortFast on an Interface — 14 min.
- [ ] Enable PortFast Globally — 6 min.
- [ ] Use Rapid-PVST — 8 min.
- [ ] Controlling the STP Root — 11 min.
- [ ] Validation — 26 min.

Configure Cisco Voice VLANs — 2 min.

- [ ] Intro — 2 min.
- [ ] Voice VLAN Overview — 10 min.
- [ ] Implementing a Voice VLAN — 16 min.
- [ ] Validation — 15 min.

WEEK 16

Configure Cisco CDP and LLDP — 1 min.

- [ ] Intro — 1 min.
- [ ] CDP and LLDP Overview — 11 min.
- [ ] CDP Defaults — 10 min.
- [ ] Use CDP to Learn the IP of a Neighbor — 9 min.

- [ ] Customize CDP 5 min.
- [ ] Enable LLDP 9 min.
- [ ] Customize LLDP 8 min.
- [ ] Validation 20 min.

Describe Wireless Principles 1 min.

- [ ] Intro 1 min.
- [ ] What is Wireless Networking? 4 min.
- [ ] Physics of Light 8 min.
- [ ] Anatomy of RF Waveforms 6 min.
- [ ] Frequency and Wavelength 8 min.
- [ ] Phase 8 min.
- [ ] The Electromagnetic Spectrum 9 min.
- [ ] Validation 3 min.

Describe Wireless Transmissions and Interference 1 min.

- [ ] Welcome to Describe Wireless Transmissions and Interference 1 min.
- [ ] Transmissions and Receptions 6 min.
- [ ] Carrier Sense Multiple Access - Collision Avoidance (CSMA/CA) 9 min.
- [ ] RF Interference 7 min.
- [ ] Collisions and Overlapping Signals 6 min.
- [ ] Modulation and Data Encoding 14 min.
- [ ] Validation 3 min.

WEEK 17

Calculate Wireless Measurements 1 min.

- [ ] Intro 1 min.
- [ ] Wireless Transmit Power 7 min.
- [ ] Introducing the Decibel 7 min.
- [ ] Decibels and Linearity 7 min.
- [ ] dBm Measurements and Math 7 min.
- [ ] Wireless dBm Calculations 13 min.
- [ ] Validation 6 min.

Explain Wireless Bands and Channels 1 min.

- [ ] Intro 1 min.
- [ ] Wireless Channels 9 min.
- [ ] Wireless Bands 10 min.
- [ ] Bonded Channels 9 min.
- [ ] Access Point Radios 9 min.
- [ ] Validation 6 min.

Describe Wi-Fi Standards 1 min.

- [ ] Intro 1 min.
- [ ] What is Wi-Fi? 8 min.
- [ ] 802.11 and 802.11a 4 min.
- [ ] 802.11b and 802.11g 7 min.
- [ ] 802.11n (Wi-Fi 4) 8 min.
- [ ] 802.11ac (Wi-Fi 5) 6 min.
- [ ] 802.11ax (Wi-Fi 6 and 6E) 7 min.
- [ ] Validation 4 min.

Describe Wireless Cells and Roaming 1 min.

- [ ] Intro 1 min.
- [ ] APs and Cells 7 min.
- [ ] Noise Floor 5 min.
- [ ] RSSI and SNR 8 min.
- [ ] Station Roaming 6 min.
- [ ] Service Set Identifiers (SSIDs) 5 min.

- [ ] Basic and Extended Service Sets 6 min.
- [ ] Validation 4 min.

WEEK 18

Explain Wireless Security Principles 1 min.

- [ ] Intro 1 min.
- [ ] Wireless Security Challenges 8 min.
- [ ] Authentication and Encryption 7 min.
- [ ] Wi-Fi Protected Access (WPA) 5 min.
- [ ] WPA Personal and Enterprise 5 min.
- [ ] 802.1X and EAP 6 min.
- [ ] RADIUS and TACACS+ 6 min.
- [ ] Validation 3 min.

Explain WPA Operation and Benefits 2 min.

- [ ] Intro 2 min.
- [ ] WPA Encryption 7 min.
- [ ] WPA 4-Way Handshake 5 min.
- [ ] WPA3 Overview 8 min.
- [ ] Simultaneous Authentication of Equals (SAE) 5 min.
- [ ] Opportunistic Wireless Encryption (OWE) 7 min.
- [ ] Validation 8 min.

Describe Wireless Network Components 1 min.

- [ ] ss Intro 1 min.
- [ ] Access Points (APs) and Stations (STAs) 6 min.
- [ ] Mesh APs and Bridges 5 min.
- [ ] AP Options 6 min.
- [ ] Antenna Effects and Types 9 min.
- [ ] Distribution Systems and Media 3 min.
- [ ] Wireless LAN Controllers (WLCs) 7 min.
- [ ] Validation 3 min.

WEEK 19

Explain Wireless Network Architectures 1 min.

- [ ] Intro 1 min.
- [ ] Autonomous Architecture 5 min.
- [ ] Lightweight Architecture 7 min.
- [ ] CAPWAP Tunneling 7 min.
- [ ] Tunneling and Data Flow 9 min.
- [ ] Cloud-Managed Architecture 10 min.
- [ ] Validation 4 min.

Explain AP Modes of Operation 1 min.

- [ ] Intro 1 min.
- [ ] Local Mode 6 min.
- [ ] FlexConnect Mode 7 min.
- [ ] Monitor and Sniffer Modes 8 min.
- [ ] Bridge and Flex+Bridge Modes 5 min.
- [ ] Access and Trunk Links 7 min.
- [ ] Validation 8 min.

Explain Cisco WLC Architecture 2 min.

- [ ] Intro 2 min.
- [ ] Legacy AireOS Controllers 7 min.
- [ ] Catalyst 9800 Controllers 7 min.
- [ ] WLC Discovery 11 min.
- [ ] WLC Redundancy 6 min.
- [ ] WLC Authentication 5 min.
- [ ] Lightweight Design Considerations 6 min.

- [ ] Validation 1 min.

Explain Cisco WLC Interfaces for AireOS 1 min.

- [ ] Intro 1 min.
- [ ] Physical Ports 8 min.
- [ ] Logical Interfaces 10 min.
- [ ] Redundancy Interfaces 6 min.
- [ ] Dynamic Interfaces 5 min.
- [ ] AP-Manager Interfaces 7 min.
- [ ] Validation 5 min.

WEEK 20

Explain Cisco WLC Configurations 2 min.

- [ ] Welcome to Explain Cisco WLC Configurations! 2 min.
- [ ] WLC Management 6 min.
- [ ] WLC GUI Overview 8 min.
- [ ] AP Connection and Configuration 7 min.
- [ ] Cisco WLANs 6 min.
- [ ] VLANs and Dynamic Interfaces 7 min.
- [ ] AP Groups 4 min.
- [ ] Validation 3 min.

Perform Cisco WLC Initial Configuration 1 min.

- [ ] Intro 1 min.
- [ ] Labbing with WLCs 11 min.
- [ ] Initial Configuration - CLI 14 min.
- [ ] Switch Configuration 3 min.
- [ ] Interface Configuration 4 min.
- [ ] AP Connections 9 min.
- [ ] Validation 1 min.
- [ ] Conclusion 1 min.

Configure Cisco WLC WLANs 1 min.

- [ ] Intro 1 min.
- [ ] WLAN Configuration 12 min.
- [ ] Wireless Security Review 5 min.
- [ ] Security Configuration Options 4 min.
- [ ] WPA2-PSK Configuration 3 min.
- [ ] WPA2 Enterprise Configuration 8 min.
- [ ] Quality of Service 4 min.
- [ ] Validation 8 min.

Troubleshoot Cisco Wireless Networks 1 min.

- [ ] Intro 1 min.
- [ ] Review Quiz 39 min.
- [ ] Configuration Review 7 min.

WEEK 21

Configure IPv4 Static Routes 1 min.

- [ ] Intro 1 min.
- [ ] Static Route Overview 15 min.
- [ ] Confirming Current Topology and Routes 5 min.
- [ ] Game Plan for Static Routes 9 min.
- [ ] Configure a Static /24 Network Route 6 min.
- [ ] Configure a Static /32 Host Route 4 min.
- [ ] Default Route 9 min.
- [ ] Validation 18 min.

Describe OSPF 1 min.

- [ ] Intro 1 min.
- [ ] Benefits of Using a Dynamic Routing Protocol 6 min.

- [ ] Overview of OSPF 13 min.
- [ ] Designated Router 4 min.
- [ ] Enable OSPF and Include All Interfaces 12 min.
- [ ] OSPF Router ID Selection Process 11 min.
- [ ] Confirming OSPF Network Types and Timers 10 min.
- [ ] Identify the DR and BDR for a Network Segment 9 min.
- [ ] Validation 23 min.

WEEK 22

Configure OSPF 1 min.

- [ ] Intro 1 min.
- [ ] Router ID, Interfaces, and DR 4 min.
- [ ] Administratively Configuring an OSPF Router ID 5 min.
- [ ] Adding OSPF Interfaces with Interface Commands 12 min.
- [ ] Verifying OSPF Enabled Interfaces and IP Routing 5 min.
- [ ] OSPF Network Statement With All Wildcard Bits On 9 min.
- [ ] Using Network Statements for a Group of Interfaces 6 min.
- [ ] Adding Additional Routers and Interfaces to OSPF Area 0 8 min.
- [ ] Interface Priority Impacts the DR Elections 7 min.
- [ ] 3rd OSPF Router on a Shared Ethernet Network Subnet 5 min.
- [ ] Validation 24 min.

Understand OSPF's Cost & Default Route 1 min.

- [ ] Intro 1 min.
- [ ] OSPF Default Costs and Default Route Overview 12 min.
- [ ] Interface and Path Cost 10 min.
- [ ] Auto Cost Reference Bandwidth 12 min.
- [ ] Using a Consistent Reference Bandwidth 7 min.
- [ ] Changing Interface Cost 5 min.
- [ ] Default Routes in OSPF 10 min.
- [ ] Validation 17 min.

WEEK 23

Understand Administrative Distance 1 min.

- [ ] Intro 1 min.
- [ ] Administrative Distance Overview 13 min.
- [ ] Default Administrative Distances 7 min.
- [ ] BGP Administrative Distances of 20 and 200 8 min.
- [ ] RIP Administrative Distance of 120 7 min.
- [ ] OSPF and EIGRP Administrative Distances of 110 and 90 7 min.
- [ ] Static Routes with an Administrative Distance of 1 5 min.
- [ ] Validation 22 min.

Use IPv4 Floating Static Routes 1 min.

- [ ] Intro 1 min.
- [ ] Floating Static Route Overview 10 min.
- [ ] Establishing Initial Default Routes 5 min.
- [ ] Adding Backup "Floating" Default Routes 9 min.
- [ ] Testing Floating Static Routes 7 min.
- [ ] Floating Static Network Routes 7 min.
- [ ] Validation 18 min.

Use Dual Stack IPv4 and IPv6 1 min.

- [ ] Intro 1 min.
- [ ] Game Plan for IPv4 and IPv6 Dual Stack Network 9 min.
- [ ] Configuring IPv4 Addressing 9 min.
- [ ] Configure OSPF Routing for IPv4 6 min.
- [ ] Configure IPv6 Global and Link-local Addressing 11 min.
- [ ] Configure Basic IPv6 Routing Using RIP 7 min.
- [ ] Using IPv6 Anycast 7 min.

- [ ] Validation 24 min.

WEEK 24

Configure Static IPv6 Routes 1 min.

- [ ] Intro 1 min.
- [ ] IPv6 Static Routing Overview 12 min.
- [ ] Configure Static IPv6 Network Routes 11 min.
- [ ] Configure a Floating IPv6 Static Route 7 min.
- [ ] Configure a Static IPv6 Host Route 8 min.
- [ ] Configure IPv6 Primary and Floating Static Default Routes 6 min.
- [ ] Additional Static Routes to All Loopback IPv6 Addresses 14 min.
- [ ] Validation 25 min.

Routes That Must Win Twice 1 min.

- [ ] Intro 1 min.
- [ ] The Winning IPv4 Route Overview 9 min.
- [ ] Confirming Longest Match Wins, and the Use of AD 6 min.
- [ ] Equal Cost Routes, AD, and Longest Match Examples 9 min.
- [ ] Calculate the Range of an IPv4 Route 11 min.
- [ ] Calculate Range Example, and When the Default Route is Used 6 min.
- [ ] Interpreting a Routing Table 5 min.
- [ ] The Price of a Route 11 min.
- [ ] Validation 17 min.

WEEK 25

Use First Hop Redundancy Protocols 2 min.

- [ ] Intro 2 min.
- [ ] First Hop Redundancy Protocol (FHRP) Overview 9 min.
- [ ] Cisco's Hot Standby Router Protocol (HSRP) 11 min.
- [ ] Configure HSRP 10 min.
- [ ] Testing an HSRP Failover, and Updating to HSRP v2 6 min.
- [ ] Configure and Test VRRP 10 min.
- [ ] Validation 17 min.

Explain Network Address Translation (NAT) 2 min.

- [ ] Intro 2 min.
- [ ] Network Address Translation (NAT) 5 min.
- [ ] Private IP Addressing 10 min.
- [ ] NAT Architecture 7 min.
- [ ] Source and Destination NAT 9 min.
- [ ] Address Pools and Overload 1 min.
- [ ] Validation 3 min.

WEEK 26

Define NAT Operation 2 min.

- [ ] Intro 2 min.
- [ ] NAT Terminology 5 min.
- [ ] Dynamic NAT 5 min.
- [ ] Static NAT 6 min.
- [ ] Port Address Translation (PAT) 8 min.
- [ ] PAT Example 7 min.
- [ ] NAT Address Types 6 min.
- [ ] Validation 3 min.

Configure Network Address Translation (NAT) 1 min.

- [ ] Intro 1 min.
- [ ] Configuration Overview 4 min.
- [ ] Topology and NAT Interfaces 5 min.
- [ ] Configure Static NAT 5 min.
- [ ] Configure Dynamic NAT 6 min.
- [ ] Configure PAT 4 min.

- [ ] Validation 26 min.

Explain Dynamic Host Configuration Protocol (DHCP) 1 min.

- [ ] Intro 1 min.
- [ ] Dynamic Host Configuration Protocol 7 min.
- [ ] DHCP Considerations 7 min.
- [ ] DHCP Process 8 min.
- [ ] DHCP Example 7 min.
- [ ] DHCP Relay 7 min.
- [ ] Configure DHCP Relay 6 min.
- [ ] Validation 16 min.

WEEK 27

Explain the Domain Name System (DNS) 2 min.

- [ ] Intro 2 min.
- [ ] DNS and Resolution 7 min.
- [ ] DNS Servers and Hierarchy 8 min.
- [ ] DNS Process 8 min.
- [ ] DNS on IOS-XE 9 min.
- [ ] Configure DNS 6 min.
- [ ] Validation 17 min.

Explain Simple Network Management Protocol (SNMP) 2 min.

- [ ] Intro 2 min.
- [ ] SNMP Framework 7 min.
- [ ] SNMP Operation 7 min.
- [ ] SNMP Versions 6 min.
- [ ] SNMPv3 IOS-XE Structure 9 min.
- [ ] Configure SNMP Parameters 3 min.
- [ ] Configure SNMPv2c 5 min.
- [ ] Configure SNMPv3 5 min.
- [ ] Validation 3 min.

Configure Syslog and NTP 1 min.

- [ ] Intro 1 min.
- [ ] System Logging 10 min.
- [ ] Syslog Servers 4 min.
- [ ] Logging Severity Levels 7 min.
- [ ] Buffer and Syslog Logging 5 min.
- [ ] Console and Terminal Logging 5 min.
- [ ] Network Time Protocol (NTP) 5 min.
- [ ] Configure NTP 6 min.
- [ ] Validation 18 min.

WEEK 28

Configure Cisco Device Management 1 min.

- [ ] Intro 1 min.
- [ ] Telnet and SSH 4 min.
- [ ] VTY Lines 6 min.
- [ ] VTY at the CLI 4 min.
- [ ] VTY Security 8 min.
- [ ] VTY Configuration 9 min.
- [ ] Enabling SSH 6 min.
- [ ] Configuring and Testing SSH 3 min.
- [ ] Validation 17 min.

Configure IOS File Management 1 min.

- [ ] Intro 1 min.
- [ ] IOS Storage System 5 min.
- [ ] Configurations and NVRAM 8 min.

- [ ] Managing IOS Files 4 min.
- [ ] Trivial File Transfer Protocol (TFTP) 7 min.
- [ ] TFTP and MD5 Demo 8 min.
- [ ] FTP, SFTP, and SCP 4 min.
- [ ] FTP Demo 3 min.
- [ ] Validation 1 min.
- [ ] Conclusion 1 min.

Describe Network Quality of Service (QoS) 2 min.

- [ ] Intro 2 min.
- [ ] The need for QoS 7 min.
- [ ] Queuing and Scheduling 10 min.
- [ ] Classification and Marking 6 min.
- [ ] L2 and L3 Marking 7 min.
- [ ] DSCP Tagging 9 min.
- [ ] Shaping and Policing 8 min.
- [ ] Validation 4 min.

WEEK 29

Describe Network Security Fundamentals 1 min.

- [ ] Intro 1 min.
- [ ] Security Concepts 5 min.
- [ ] Data Authentication, Privacy, and Integrity 6 min.
- [ ] Logical and Physical Security 5 min.
- [ ] Password Policies and MFA 9 min.
- [ ] Network Access Control (NAC) 5 min.
- [ ] User Compliance 5 min.
- [ ] Common Network Attacks 7 min.
- [ ] Validation 5 min.

Create Standard IPv4 ACLs 1 min.

- [ ] Intro 1 min.
- [ ] Access Control List Overview 13 min.
- [ ] Capabilities of Standard vs Extended ACLs 10 min.
- [ ] Creating a Standard Numbered ACL 15 min.
- [ ] Applying and Testing a Standard ACL 9 min.
- [ ] Standard Named ACL 10 min.
- [ ] Validation 20 min.

Create Extended IPv4 ACLs 1 min.

- [ ] Intro 1 min.
- [ ] Extended ACL Review, and Game Plan 9 min.
- [ ] Create an Extended Numbered ACL 21 min.
- [ ] Apply and Test the Numbered ACL 13 min.
- [ ] Create an Extended Named ACL 10 min.
- [ ] Validation 32 min.

WEEK 30

Use ACLs with NAT and PAT 1 min.

- [ ] Intro 1 min.
- [ ] Overview of ACLs Used with NAT and PAT 6 min.
- [ ] ACL, NAT, and PAT Game Plan 5 min.
- [ ] Configure ACLs for Use with Address Translation 9 min.
- [ ] Configure IP NAT Interfaces 3 min.
- [ ] Configure NAT POOL 4 min.
- [ ] Configure NAT Rules 7 min.
- [ ] Testing the NAT One to One Mappings 8 min.
- [ ] Testing the PAT/Overload Translations 5 min.
- [ ] Validation 23 min.

Describe Cisco VPNs — 1 min.

- [ ] Intro — 1 min.
- [ ] VPN Overview — 12 min.
- [ ] IPsec Fundamentals — 12 min.
- [ ] IPsec Site to Site VPN Example — 8 min.
- [ ] Using ACLs and Hit Counts to Confirm Tunnel Use — 9 min.
- [ ] Creating Static Routes to Send Traffic Through the Tunnel — 8 min.
- [ ] Verifying Results of IPsec Protected GRE Traffic — 5 min.
- [ ] Validation — 23 min.

WEEK 31

Use Cisco IPv4 DHCP Snooping — 1 min.

- [ ] Intro — 1 min.
- [ ] IPv4 DHCP Snooping Overview — 9 min.
- [ ] Game Plan for DHCP Services and DHCP Snooping — 7 min.
- [ ] Configure R4 as a DHCP server — 5 min.
- [ ] Configure DHCP Relay — 7 min.
- [ ] Enable DHCP Snooping — 4 min.
- [ ] Configuring DHCP Snooping Trusted Ports — 8 min.
- [ ] Using the Snooping Database and Agent — 4 min.
- [ ] Validation — 21 min.

Use Cisco L2 Port Security — 1 min.

- [ ] Intro — 1 min.
- [ ] Port Security Overview — 20 min.
- [ ] Configure the Layer 2 Switched Environment — 10 min.
- [ ] Configure and then Enable Port Security — 12 min.
- [ ] Manually Configuring Secure MAC Addresses — 9 min.
- [ ] When Port-Security Interacts with Other Features — 14 min.
- [ ] Validation — 23 min.

WEEK 32

Understand L2 Security Controls — 1 min.

- [ ] Intro — 1 min.
- [ ] DAI and using DHCP Snooping Binding Information — 11 min.
- [ ] Layer 2 Controls To Protect Spanning Tree Protocol (STP) — 6 min.
- [ ] Mitigate VLAN Hopping Attacks — 9 min.
- [ ] Enable DHCP Services and Snooping — 12 min.
- [ ] Configure Dynamic ARP Inspection (DAI) — 8 min.
- [ ] STP BPDU Guard — 5 min.
- [ ] BPDU Filtering — 5 min.
- [ ] Loop Guard — 5 min.
- [ ] STP Root Guard — 7 min.
- [ ] Validation — 23 min.

Describe Cisco AAA — 1 min.

- [ ] Intro — 1 min.
- [ ] AAA Concepts — 15 min.
- [ ] RADIUS &TACACS+ — 10 min.
- [ ] AAA Local Authentication of Telnet — 16 min.
- [ ] AAA Local Authentication of SSH — 11 min.
- [ ] Validation — 22 min.

WEEK 33

Understand Automation for Network Management — 1 min.

- [ ] Introduction to Network Automation — 1 min.
- [ ] What is Network Automation? — 9 min.
- [ ] What should we Automate? — 11 min.
- [ ] Push vs Pull — 9 min.
- [ ] What is Ansible? — 8 min.
- [ ] Ansible in Action — 12 min.
- [ ] Puppet and Chef — 7 min.

- [ ] What is Terraform? 9 min.
- [ ] Terraform in Action 15 min.
- [ ] Artificial Intelligence 8 min.
- [ ] Validation 4 min.

Last updated 9.26.2024