CCNA: Introduction to Networks

Course Overview

The first course in the CCNA curriculum introduces the architectures, models, protocols, and networking elements that connect users, devices, applications and data through the Internet and across modern computer networks - including IP addressing and Ethernet fundamentals.

Benefits

By the end of the course, students can build simple local area networks (LAN) that integrate IP addressing schemes, foundational network security, and perform basic configurations for routers and switches.

Learning Components

- 17 modules
- 24 hands-on labs
- 31 Cisco Packet Tracer activities
- 36 videos
- 10 syntax checkers
- 13 interactive activities
- 64 CYU quizzes
- 17 module exams
- 6 module group exams
- 1 final exam

Features

Target Audience: Secondary vocational students, 2-year and 4-year college students in Networking or Engineering

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNA: Switching, Routing, and Wireless Essentials

CCNA: Switching, Routing, and Wireless Essentials

Course Overview

The second course in the CCNA curriculum focuses on switching technologies and router operations that support small-to-medium business networks and includes wireless local area networks (WLAN) and security concepts.

Benefits

Students learn key switching and routing concepts. They can perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure and secure a basic WLAN.

Learning Components

- 16 modules
- 14 hands-on labs
- 31 Cisco Packet Tracer activities
- 15 videos
- 19 syntax checkers
- 1 interactive activity
- 36 CYU quizzes
- 16 module exams
- 5 module group exams
- 1 final exam

Features

Target Audience: Secondary vocational students, 2-year and 4-year college students in Networking or Engineering

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNA: Enterprise Networking, Security, and Automation

CCNA: Enterprise Networking, Security, and Automation

Course Overview

The third CCNA course describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks – including wide area network (WAN) technologies & quality of service (QoS) mechanisms for secure remote access, along with software-defined networking, virtualization, & automation concepts supporting network digitization.

Benefits

Students gain skills to configure and troubleshoot enterprise networks, and learn to identify and protect against cybersecurity threats. They are introduced to network management tools and learn key concepts of software-defined networking, including controller-based architectures and how application programming interfaces (APIs) enable network automation.

Learning Components

- 14 modules
- 12 hands-on labs
- 29 Cisco Packet Tracer activities
- 32 videos
- 13 syntax checkers
- 2 interactive activities
- 53 CYU quizzes
- 14 module exams
- 5 module group exams
- 1 final exam
- 1 practice exam for CCNA certification exam

Features

Target Audience: 2-year and 4-year college students in Networking or Engineering

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNP Enterprise Core

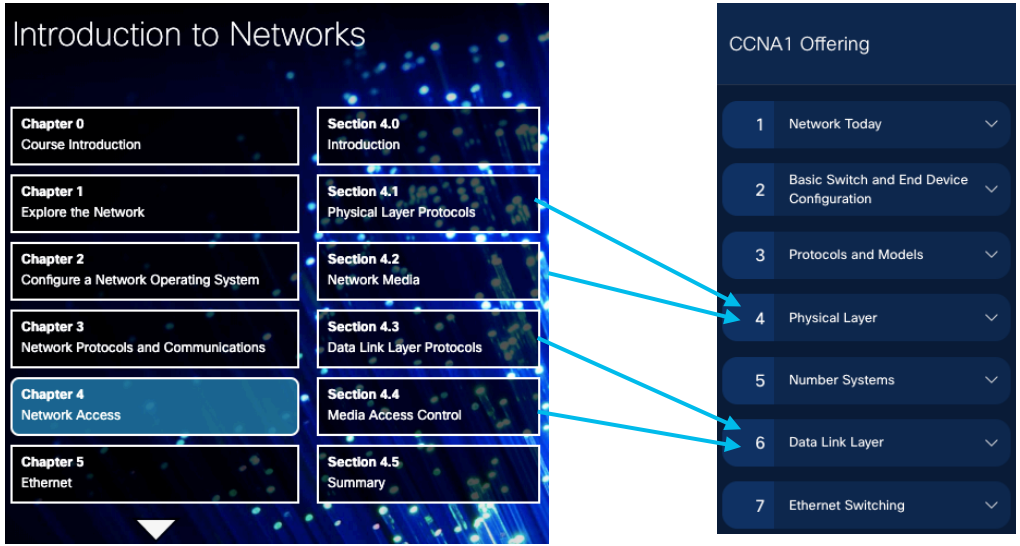
Enhanced Course Design

Introducing modules for better organization

- ✓ Topics are grouped together
- ✓ Find content more easily

A **module** is an integrated unit of learning that targets a common set of competencies or skills.

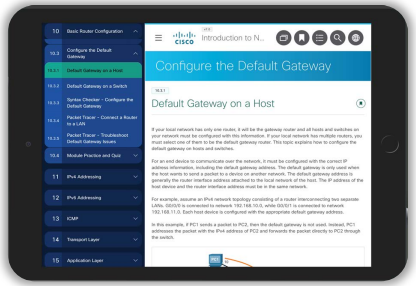
Module size depends on the competency and number of topics.



Example: CCNA: ITN (Version 6) Chapter 4 is re-organized to CCNA: ITN (Version 7) Modules 4 and 6.

Enhanced Course Design

Accessibility Enhancements

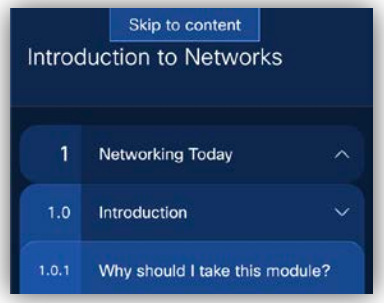


Redesigned User Interface

- ✓ Developed for Web Content Accessibility Guidelines 2.1
- ✓ New sidebar navigation
- ✓ Mobile-friendly
- ✓ Performance enhancements
- ✓ Improved color contrast

Enhancements for Screen Readers

- ✓ Media descriptions and transcripts throughout
- ✓ Descriptions & transcripts tied directly to user interface
- ✓ Conversion to HTML- screen reader can read tables, command windows, Syntax Checkers



Better Keyboard Accessibility

- ✓ ‘Skip to Content’ sidebar navigation
- ✓ All activities are now keyboard accessible
- ✓ New, accessible header with all user functions

Build Critical Skills for Today - and Tomorrow

Certification Alignment

Associate Level

CISCO CERTIFIED CCNA

One Exam

- As of Feb 2020, Cisco has a new, consolidated CCNA certification evolved for the New Network
- NetAcad curriculum has evolved to stay aligned
- In CCNA 7.0, students gain critical networking skills, plus foundations for security and automation
- CCNA 7.0 practice exams and activities prepare learners for the new exam

CCNA 7.0 Course Outlines

Intro to Networks (ITN)
Networking Today
Basic Switch and End Device Configuration
Protocol Models
Physical Layer
Number Systems
Data Link Layer
Ethernet Switching
Network Layer
Address Resolution
Basic Router Configuration
IPv4 Addressing
IPv6 Addressing
ICMP
Transport Layer
Application Layer
Network Security Fundamentals
Build a Small Network

Switching, Routing, and Wireless Essentials (SRWE)
Basic Device Configuration
Switching Concepts
VLANs
Inter-VLAN Routing
STP
Etherchannel
DHCPv4
SLAAC and DHCPv6 Concepts
FHRP Concepts
LAN Security Concepts
Switch Security Configuration
WLAN Concepts
WLAN Configuration
Routing Concepts
IP Static Routing
Troubleshoot Static and Default Routes

Enterprise Networking, Security and Automation (ENSA)
Single-Area OSPFv2 Concepts
Single-Area OSPFv2 Configuration
WAN Concepts
Network Security Concepts
ACL Concepts
ACLs for IPv4 Configuration
NAT for IPv4
VPN and IPsec Concepts
QoS Concepts
Network Management
Network Design
Network Troubleshooting
Network Virtualization
Network Automation

New/significantly changed content

Complementary Options

+

CCNP Enterprise (ENCOR, ENARSI)

or

CCNA Security / CCNA CyberOps

or

DevNet Associate

or

Python / ETWs

or lead with

IT Essentials

Accelerated Path to Job Readiness

Module Objectives

Introduction to Networks (ITN)

Module		Module Group Assessments
Module 1	Networking Today	**Basic Network Connectivity and Communications**
Module 2	Basic Switch and End Device Configuration	
Module 3	Protocol Models	
Module 4	Physical Layer	**Ethernet Concepts**
Module 5	Number Systems	
Module 6	Data Link Layer	
Module 7	Ethernet Switching	
Module 8	Network Layer	**Communicating Between Networks**
Module 9	Address Resolution	
Module 10	Basic Router Configuration	
Module 11	IPv4 Addressing	**IP Addressing**
Module 12	IPv6 Addressing	
Module 13	ICMP	
Module 14	Transport Layer	**Network Application Communications**
Module 15	Application Layer	
Module 16	Network Security Fundamentals	**Building and Securing a Small Network**
Module 17	Build a Small Network	

NEW!

Accelerated Path to Job Readiness

Module Objectives

Switching, Routing, and Wireless Essentials (SRWE)

Module		Module Group Assessments
Module 1	Basic Device Configuration	**Switching Concepts and VLANS**
Module 2	Switching Concepts	
Module 3	VLANs	
Module 4	Inter-VLAN Routing	
Module 5	STP	**Redundant Networks**
Module 6	Etherchannel	
Module 7	DHCPv4	**Available and Reliable Networks**
Module 8	SLAAC and DHCPv6 Concepts	
Module 9	FHRP Concepts	
Module 10	LAN Security Concepts	**L2 Security and WLANs**
Module 11	Switch Security Configuration	
Module 12	WLAN Concepts	
Module 13	WLAN Configuration	
Module 14	Routing Concepts	**Routing Concepts and Configuration**
Module 15	IP Static Routing	
Module 16	Troubleshoot Static and Default Routes	

Accelerated Path to Job Readiness

Module Objectives

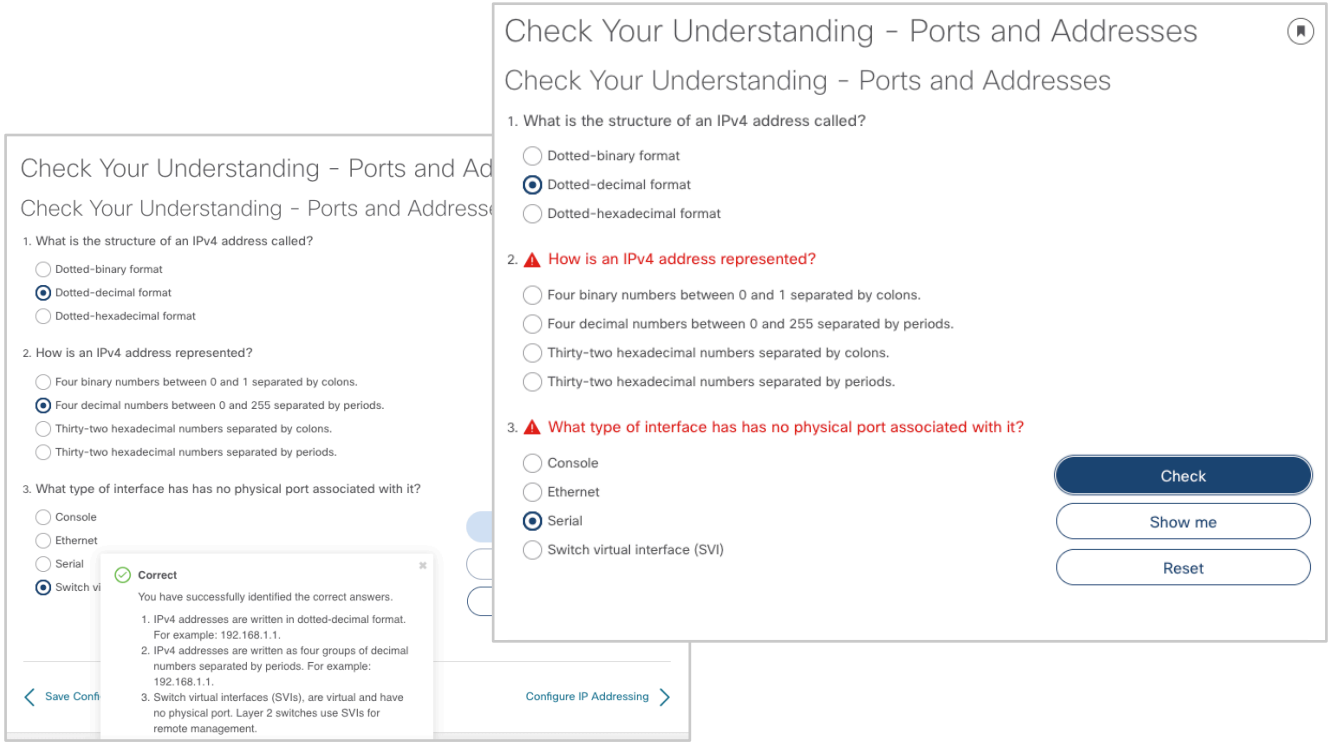
Enterprise Networking, Security, and Automation (ENSA)

Module		Module Group Assessments
Module 1	Single-Area OSPFv2 Concepts	**OSPF Concepts and Configuration**
Module 2	Single-Area OSPFv2 Configuration	
Module 3	Network Security Concepts	**Network Security**
Module 4	ACLs Concepts	
Module 5	ACLS for IPv4 Configuration	
Module 6	NAT for IPv4	
Module 7	WAN Concepts	**WAN**
Module 8	VPN and IPsec Concepts	
Module 9	QoS Concepts	**Optimize, Monitor, and Troubleshoot Networks**
Module 10	Network Management	
Module 11	Network Design	
Module 12	Network Troubleshooting	
Module 13	Network Virtualization	**Network Virtualization and Automation**
Module 14	Network Automation	

Improved Outcomes

Check Your Understanding

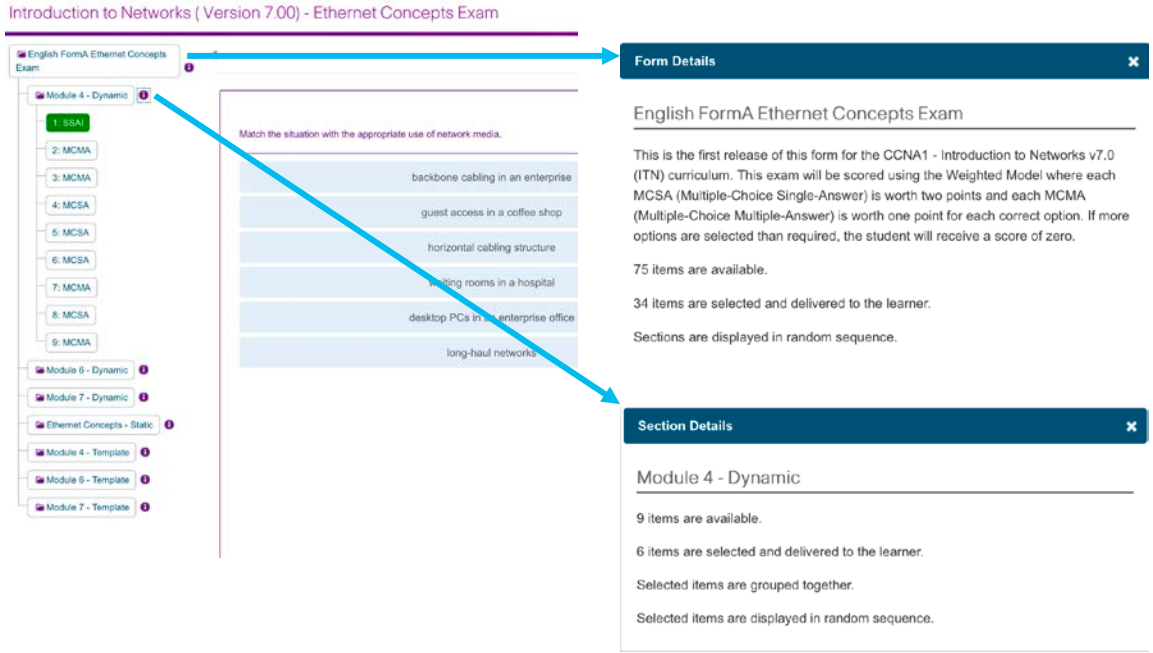
- Complete a topic with self-assessment
- Gives students the opportunity validate and retain critical knowledge
- Use feedback as review



Improved Outcomes

Dynamic Forms - Administer unique exams to each of your students

- Exams are dynamically generated from pool of questions, maintaining exam integrity and validity
- Available for Module Group exams and Final course exam
- Form and Section Details indicate total items available and selected from the pool for students.
- Module Group exam items, delivered or not, are available for preview with the assessment viewer

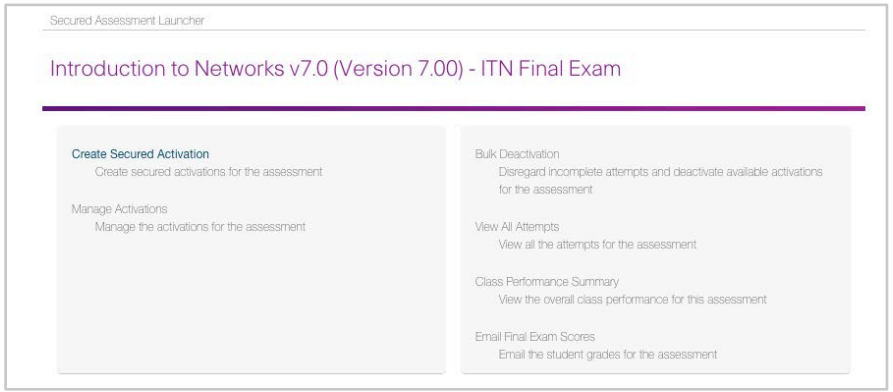


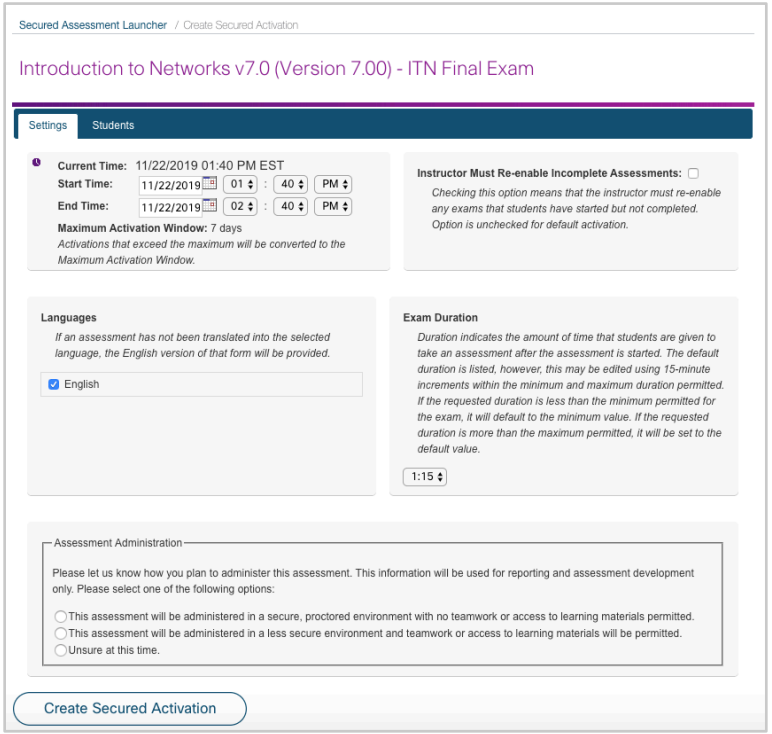
Improved Outcomes

Secured Activation increases final exam security

New Assessment Launcher

- Final exams remain secure until administered by instructor
- Replaces the Assessment Viewer
- For security & integrity, questions are not visible



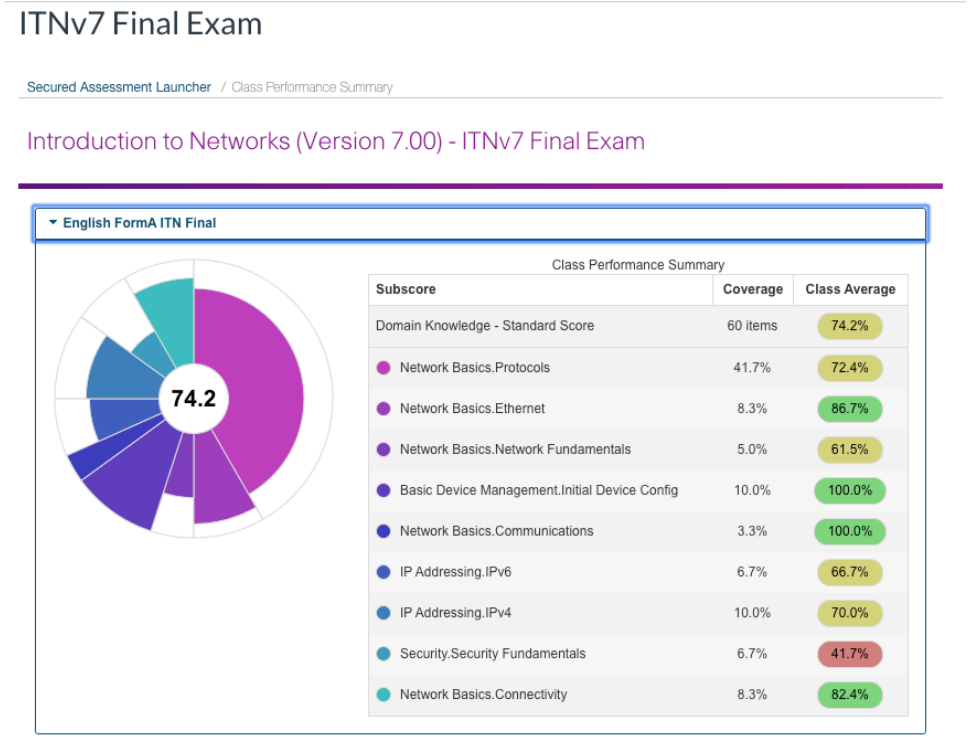


Improved Outcomes

Secured Activation provides useful insights on class performance

Domain Level Reporting

- New Class Performance Summary report for instructors
- Replaces the Student Performance Summary
- See how your students are performing in each domain based on objectives of the modules and course



Improved Outcomes

Formative and Summative Assessments guide learning at strategic points

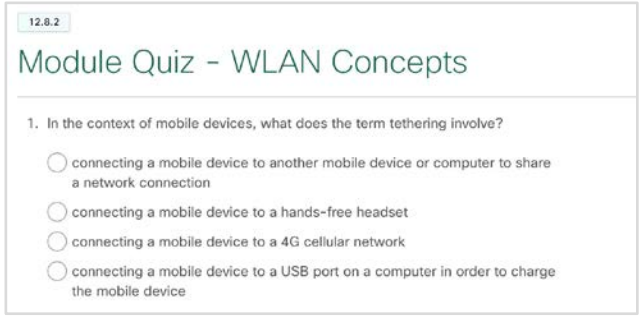
Self-Assessments

Check Your Understanding

- ✓ Multiple per module
- ✓ Correct/incorrect scoring and ‘show me’ option

Module Quizzes

- ✓ 1 per module
- ✓ Correct/incorrect scoring and ‘show me’ option


12.0.2

Module Quiz - WLAN Concepts

1. In the context of mobile devices, what does the term tethering involve?

- connecting a mobile device to another mobile device or computer to share a network connection
- connecting a mobile device to a hands-free headset
- connecting a mobile device to a 4G cellular network
- connecting a mobile device to a USB port on a computer in order to charge the mobile device

Launched by Instructor

Module Group Exams

- ✓ Multiple per course

Final Exams

- ✓ 1 per course

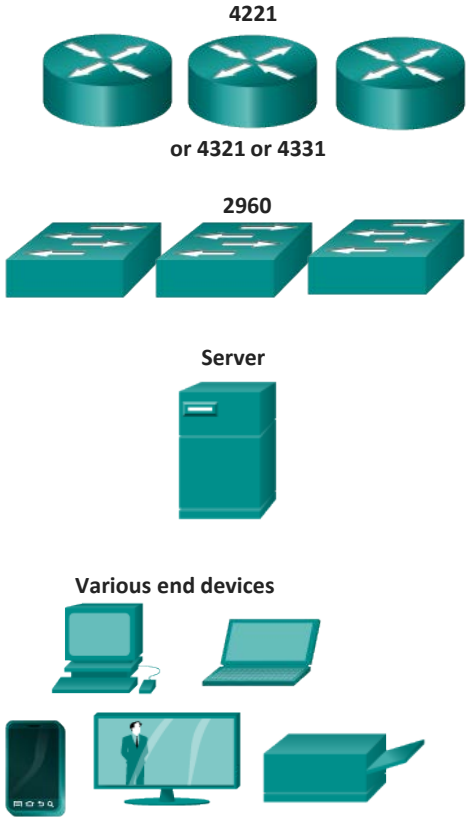
Certification Practice Exams

- ✓ 1 for ENSA course

Module		Module Group Topics
Module 1	Single-Area OSPFv2 Concepts	OSPF Concepts and Configuration
Module 2	Single-Area OSPFv2 Configuration	
Module 3	Network Security Concepts	Network Security
Module 4	ACLs Concepts	
Module 5	ACLS for IPv4 Configuration	
Module 6	NAT for IPv4	
Module 7	WAN Concepts	WAN
Module 8	VPN and IPsec Concepts	
Module 9	QoS Concepts	Optimize, Monitor, and Troubleshoot Networks
Module 10	Network Management	
Module 11	Network Design	
Module 12	Network Troubleshooting	
Module 13	Network Virtualization	Network Virtualization and Automation
Module 14	Network Automation	

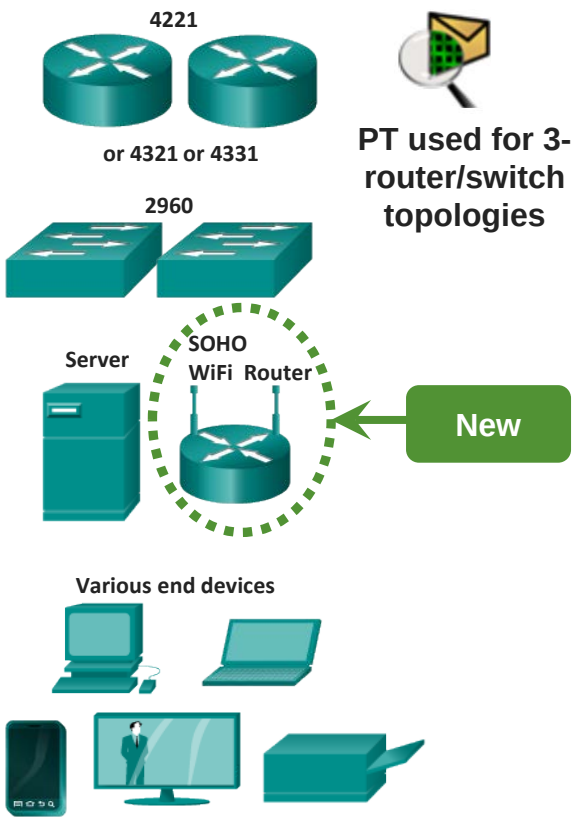
Lab Equipment

CCNA 6.0 vs 7.0 – Lab Equipment



For CCNA 7.0:

- **Serial ports not required**
- **Packet Tracer 7.3.0 or higher required**



PT used for 3-router/switch topologies

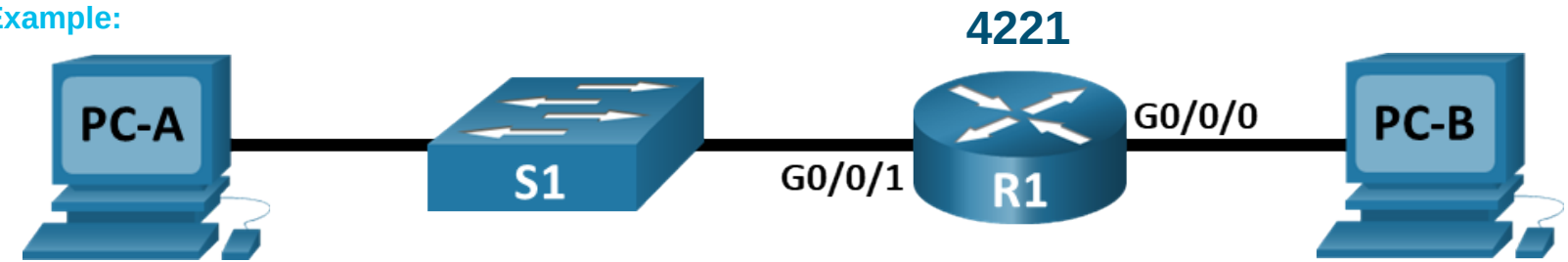
SOHO Wi-Fi Router is Back in CCNA 7.0

- 1 wireless router (generic brand) with WPA2 support
- Configure a Home Network with Wireless
- Configure WLAN with WPA2 Encryption
- GUI

Can I Teach CCNA v7 with1941/2901 Routers?

- Yes, you can use the 1941/2901 Routers, but please note:
  - CCNA 7.0 Hands-on labs and Skills Assessments (SA) were written using the Cisco 4221 routers
  - Some modifications for router interface names will be required
  - Most CCNA 7.0 commands should work, but full regression testing for the 1941 and 2901 was not done

Example:



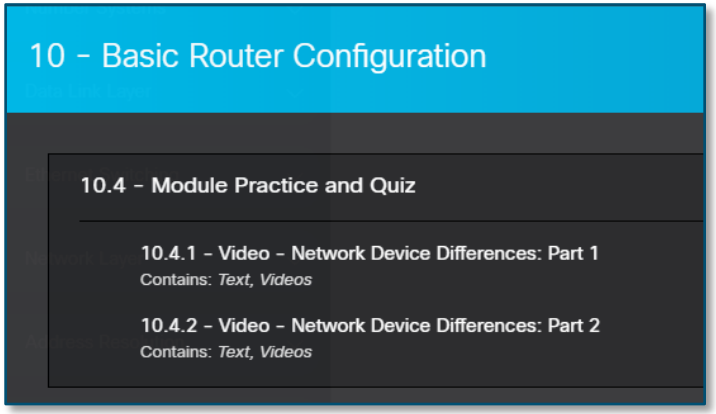
1941/2901 – Interface names G0/0 & G0/1

Network Device Differences Videos

- Curriculum team created 2 videos available to students and instructors about Network Device Differences – mostly available ports
- Available in the IPD Week course on the CCNA 7.0 page for instructors
- Student access – CCNA: ITN Module 10 – 10.4.1 and 10.4.2

TOPICS IN CCNA 1: Introduction to Networks v7.0 (ITN)

Topic	Session	Recording	Presentation
Network Devices These videos are included in ITNv7 Chapter 10. Posted here for your convenience.	Network Device Differences Part 1 Overview		N/A
	Network Device Differences Part 2 Configuration		N/A



CCNA 7.0 Equipment List – ISR4K IOS-XE Image

- **Updated equipment list defines IOS-XE image requirements:**

Equipment List (Option 1)

The Cisco 4221 router shown in Option 1 should be ordered with IOS-XE Image with Payload Encryption:
e.g. SISR4200UK9-xxx (select a current version for xxx), Cisco ISR 4200 Series IOS XE Universal

Qty	Product Number	Description	Notes
2	ISR4221/K9	Cisco ISR 4221 (2GE, 2NIM, 8G FLASH, 4G DRAM,IPB) See note above regarding IOS-XE image.	1,2

- **Cisco Commerce order tool has 3 tabs for IOS-XE options for ISR4k. First tab is for SD-WAN and should NOT be selected as this is not needed for labs and requires feature license. Second tab includes K9 images that are applicable.**

??? ICW.CATEGORY ???

VADSL Firmware Options

IOS Software and Version Type

IOS Technology Package Licenses

NETWORK PNP LICENSE

ISR4321/K9 > IOS Software and Version Type

??? ICW.KEY ???

SDWAN Image With Payload Encryption | Image with Payload Encryption | Image with No Payload Encryption

??? ICW.QNTY ??? | ??? ICW.MSRP ??? (USD)

??? ICW

Series SD-WAN IOS XE Universal ??? ICW.MORE ???

Logistics & Timing

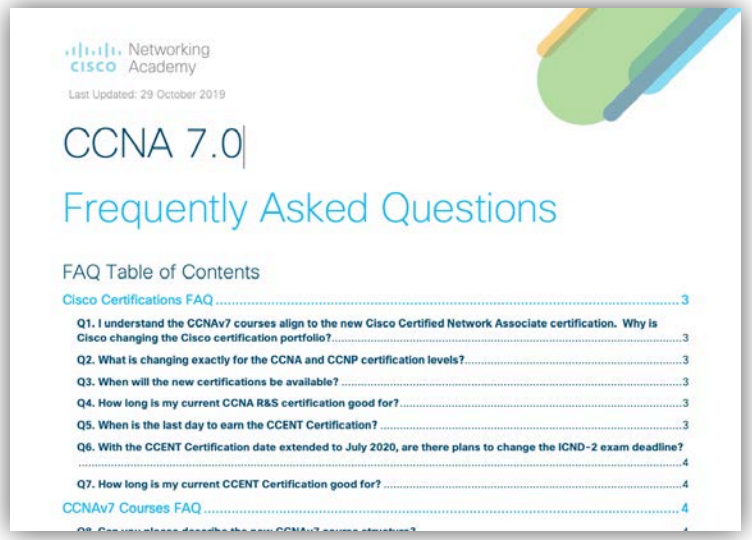
CCNA 7.0 Instructor Qualification Mapping

CCNA R&S 6 Course Current Qualification(s)	CCNA 7 Course Qualification(s) Earned	Materials to Review*
CCNA 1 (Intro to Networks)	CCNA 1 (Intro to Networks)	No additional
CCNA 1 (Intro to Networks) **CCNA 2 (Routing & Switching Essentials)**	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials)	CCNA 2 (SRWE) 7
CCNA 1 (Intro to Networks) **CCNA 2 (Routing & Switching Essentials)** **CCNA 3 (Scaling Networks)**	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials) CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) 7 + Bridging Course
CCNA 1 (Intro to Networks) **CCNA 2 (Routing & Switching Essentials)** **CCNA 3 (Scaling Networks)** **CCNA 4 (Connecting Networks)**	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials) CCNA 3 (Enterprise Networking, Security, and Automation)	Bridging Course
CCNA 2 (Routing & Switching Essentials)	CCNA 2 (Switching, Routing, and Wireless Essentials)	CCNA2 (SRWE) 7
CCNA 3 (Scaling Networks)	CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) 7
CCNA 4 (Connecting Networks)	CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) 7

Instructor Professional Development (IPD) Week Landing Page - https://1040239.netacad.com/courses/863485/pages/ccna-7

CCNA 7.0 Course Resources

- Scope and Sequence
- Release Notes
- Instructor Planning Guides (includes Instructor PPTs)
- Instructor Lab Source Files
- Instructor Packet Tracer Source Files
- Packet Tracer Activity Source Files
- Student Lab Source Files
- Student Packet Tracer Source Files
- Exam Design Documents
- PTSA Design Documents



Networking Academy

Last Updated: 29 October 2019

CCNA 7.0

Frequently Asked Questions

FAQ Table of Contents

Access Course Resource Pages through NetAcad.com

https://www.netacad.com/portal/resources/course-resources/ccna-itn
https://www.netacad.com/portal/resources/course-resources/ccna-srwe
https://www.netacad.com/portal/resources/course-resources/ccna-ensa
https://www.netacad.com/portal/resources/course-resources/ccna-bridging


CISCO