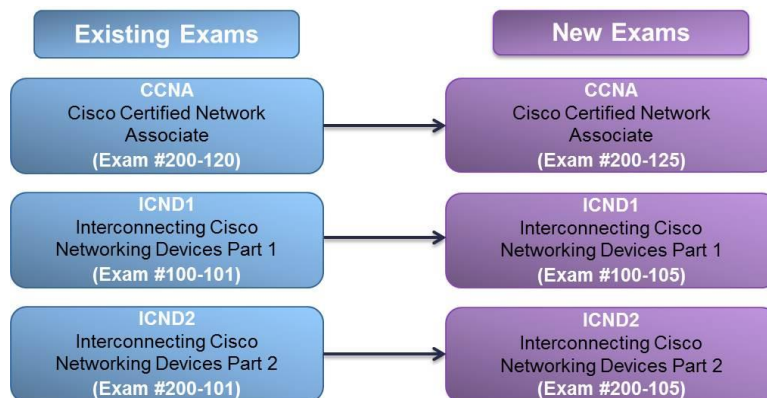


# CCNA Routing and Switching Certification Training and Exam Content Updates

As Enterprises adopt programmable network architectures, the knowledge and skills required of a network engineer will expand significantly. The CCNA Routing and Switching certification has been restructured to meet these advancements in technologies and has been distributed across each of the training courses and exams. This release of the curriculum will empower IT professionals with the understanding of software defined networking (SDN) and the integration of virtualized resources deployed in Enterprise network architectures.

The course names and acronyms remain the same but each of the exam numbers has been updated. The following diagram outlines how the existing exams align to the new exams.



This document will provide a summary of the key updates that have been made to the new versions of each exam. Each domain lists the technology topics. The topics are general guidelines for the content likely to be included in the exam. However, other related topics may also appear on any specific delivery of the exams.

The domains better reflect the job roles and tasks required in jobs typically held by CCNA Routing and Switching Certified individuals.

## Interconnecting Cisco Networking Devices Part 1 (ICND1) Summary

The 100-101 ICND1 exam will be replaced by 100-105 ICND1 exam. The overall number of domains has changed from seven to five. The updated exam domain categories align with CCNP Routing and Switching, CCIE Routing and Switching and other Cisco certifications.

## Domain Comparisons

100-101 ICND1 v2.0	100-105 ICND1 v3.0
1.0 Operation of IP Data Networks	1.0 Network Fundamentals
2.0 LAN Switching Technologies	2.0 LAN Switching Technologies
3.0 IP Addressing	3.0 Routing Technologies
4.0 IP Routing Technologies	4.0 Infrastructure Services
5.0 IP Services	5.0 Infrastructure Management
6.0 Network Device Security	
7.0 Troubleshooting	

### ICND1 Exam Comparison

The Troubleshooting topics have been distributed throughout the various domains where applicable. Refer to the ICND1 v3.0 Exam Topics for a complete list of topics. Outlined below are the key topics that have been moved and added to the exam and training curriculum.

#### Key Topics Removed or Moved to ICND2 Exam:

- OSPF (single area) and other OSPF topics were moved into ICND2 since RIP is used to introduce CCENT candidates to IP routing protocols.
- Dual Stack was removed since there are many different IPv4 to IPv6 transition technologies being used.
- Cisco Express Forwarding (CEF) has been removed.

#### Key Topics Added:

- High level knowledge of the impact and interactions of infrastructure components in an Enterprise network, specifically:
  - Firewalls
  - Access Points
  - Wireless Controllers
- Awareness of the Collapsed Core architecture compared to traditional three-tier architectures. This option collapses the Distribution and Core into a single tier with the Access as the second tier.
- Configure and verify IPv6 Stateless Address Auto Configuration (SLAAC).
- Added Anycast to the list of IPv6 addressing types.
- Knowledge of Link Layer Discovery Protocol (LLDP). An L2 discovery protocol used in addition to Cisco Discovery Protocol.
- RIPv2 for IPv4 as the primary focus for understanding of how routing protocols work.
- Added requirements to understand DNS and DHCP related connectivity issues.
- Understanding of Syslog message logging for device monitoring.
- Skills and knowledge of device management related to backup and restoring device configurations, IOS feature licensing, and configuring time zones.

View the study resources available for the [ICND1](#) exam.

## Interconnecting Cisco Networking Devices Part 2 (ICND2) Summary

The 200-101 ICND2 exam will be replaced by 200-105 ICND2 exam. The overall number of domains continues to be five and align with CCNP Routing and Switching, CCIE Routing and Switching and other Cisco certifications.

### Domain Comparison

200-101 ICND2 v2.0	200-105 ICND2 v3.0
1.0 LAN Switching Technologies	1.0 LAN Switching Technologies
2.0 IP Routing Technologies	2.0 Routing Technologies
3.0 IP Services	3.0 WAN Technologies
4.0 Troubleshooting	4.0 Infrastructure Services
5.0 WAN Technologies	5.0 Infrastructure Maintenance

### ICND2 Exam Comparison

Refer to the ICND2 v3.0 Exam Topics for a complete list of topics. Outlined below are the key topics that have been removed and added to the exam and training curriculum.

#### Key Topics Removed:

- Frame-Relay and Serial WAN technologies are no longer covered.
- VRRP and GLBP have been removed from First Hop Redundancy Protocols. Only HSRP remains since it is most commonly deployed.

#### Key Topics Added:

- Knowledge of dual-homed vs single-homed Intelligent WAN topology options.
- Basic knowledge of external BGP (eBGP) used to connect Enterprise branches.
- Expanded VPN topics to include DMVPN, Site-to-Site VPN, and Client VPN technologies commonly used by Enterprises.
- Understanding of how Cloud resources are being used in Enterprise network architectures, including:
  - How cloud services will affect traffic paths and flows
  - Common virtualized services and how these coexist with a legacy infrastructure
  - Basics of virtual network infrastructure (Network Function Virtualization)
- Awareness of Programmable Network (SDN) architectures including:
  - Separation of the control plane and data plane
  - How a controller functions and communicates northbound to network applications and southbound to the R&S infrastructure using APIs.
- How to use the Path Trace application for ACLs which is a key new network application enabled by the Application Policy Infrastructure Controller – Enterprise Module (APIC-EM). This tool automates the troubleshooting and resolution of complex ACL deployments.
- Understanding of QoS concepts related to marking, shaping, and policing mechanisms used to manage congestion of various types of traffic. The need for QoS and how it is used for prioritizing voice, video and data traffic. Plus an understanding of the automation provided by programmable networks to implement business critical QoS policies.

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View the study resources available for the [ICND2](#) exam.

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