

CCNA R&S SYLLABUS

ABOUT CCNA R&S

CCNA (Cisco Certified Network Associate) is an IT certification from Cisco. CCNA certification is a second level Cisco Career certification. CCNA certification validates the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks, including implementation and verification of connections to remote sites in a WAN.[1]

About CISCO

- Introduction to Networking
- Network types
- Communication types , Modes & Devices
- Network topology
- Network Reference Model (OSI &DoD Model)

LAN Switching Technologies

- Determine the technology and media access control method for Ethernet networks
- Identify basic switching concepts and the operation of Cisco switches.
- Verify network status and switch operation using basic utilities such as ping, telnet &ssh.
- Identify enhanced switching technologies
- Describe how VLANs create logically separate networks and the need for routing between them.
- Configure and verify trunking on Cisco switches
- Configure and verify PVSTP operation

IP addressing (IPv4 / IPv6)

- Describe the operation and necessity of using private and public IP addresses for IPv4 addressing
- Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/WAN environment.
- Identify the appropriate IPv4 addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment.
- Describe the technological requirements for running IPv6 in conjunction with IPv4 such as dual stack
- Describe IPv6 addresses

IP Routing Technologies

- Describe basic routing concepts
- Configure and verify operation status of a device interface, both serial and ethernet
- Verify router configuration and network connectivity
- Configure and verify routing configuration for a static or default route given specific routing requirements
- Differentiate methods of routing and routing protocols
- Configure and verify OSPF (single area)
- Configure and verify EIGRP (single AS)
- Configure and verify interVLAN routing (Router on a stick)

IP Services

- Configure and verify DHCP (IOS Router)
- Identify the basic operation of NAT

- Configure and verify NAT for given network requirements
- Configure and verify NTP as a client
- Recognize High availability (FHRP)
- Configure and verify Syslog
- Describe SNMP v2 & v3

Network Device Security

- Configure and verify network device security features such as
- Configure and verify Switch Port Security features
- Describe the types, features, and applications of ACLs
- Configure and verify ACLs to filter network traffic

Troubleshooting

- Identify and correct common network problems
- Troubleshoot and correct common problems associated with IP addressing and host configurations.
- Troubleshoot and Resolve VLAN problems
- Troubleshoot and Resolve trunking problems on Cisco switches
- Troubleshoot and Resolve OSPF problems
- Troubleshoot and Resolve EIGRP problems
- Troubleshoot and Resolve interVLAN routing problems
- Troubleshoot and Resolve ACL issues
- Troubleshoot and Resolve WAN implementation issues
- Troubleshoot etherchannel problems

WAN Technologies

- Identify different WAN Technologies
- Metro Ethernet
- VSAT
- Cellular 3G / 4G
- MPLS
- ISDN
- VPN
- Configure and verify a basic WAN serial connection
- Configure and verify a PPP connection between Cisco routers
- Configure and verify Frame Relay on Cisco routers
- Implement and troubleshoot PPPoE