

CCNP

Curriculum



ROUTE (300-101)

1. Network Principles

- Identify Cisco Express Forwarding concepts
- Explain general network challenges
- Describe IP operations
- Explain TCP operations
- Describe UDP operations
- Recognize proposed changes to the network

2. Layer 2 Technologies

- Configure and verify PPP
- Explain Frame Relay

3. Layer 3 Technologies

- Identify, configure, and verify IPv4 addressing and subnetting
- Identify IPv6 addressing and subnetting
- Configure and verify static routing
- Configure and verify default routing
- Evaluate routing protocol types
- Describe administrative distance
- Troubleshoot passive interfaces
- Configure and verify VRF lite
- Configure and verify filtering with any protocol
- Configure and verify redistribution between any routing protocols or routing sources
- Configure and verify manual and auto summarization with any routing protocol
- Configure and verify policy-based routing
- Identify suboptimal routing
- Explain ROUTE maps
- Configure and verify loop prevention mechanisms
- Configure and verify RIPv2
- Describe RIPv2
- Describe EIGRP packet types
- Configure and verify EIGRP neighbor relationship and authentication
- Configure and verify EIGRP stubs

- Configure and verify EIGRP load balancing
- Describe and optimize EIGRP metrics
- Configure and verify EIGRP for IPv6
- Describe OSPF packet types
- Configure and verify OSPF neighbor relationship and authentication
- Configure and verify network types, area types, and router types
- Configure and verify OSPF path preference
- Configure and verify OSPF operations
- Configure and verify OSPF for IPv6
- Describe, configure, and verify BGP peer relationships and authentication
- Configure and verify e-BGP (IPv4 and IPv6 address families)
- Explain BGP attributes and best-path selection

4. VPN Technologies

- Configure and verify GRE
- Describe DMVPN (single hub)
- Describe Easy Virtual Networking (EVN)

5. Infrastructure Security

- Describe IOS AAA using local database
- Describe device security using IOS AAA with TACACS+ and RADIUS
- Configure and verify device access control
- Configure and verify router security features

6. Infrastructure Services

- Configure and verify device management
- Configure and verify SNMP
- Configure and verify logging
- Configure and verify Network Time Protocol (NTP)
- Configure and verify IPv4 and IPv6 DHCP
- Configure and verify IPv4 Network Address Translation (NAT)
- Describe IPv6 NAT
- Describe SLA architecture
- Configure and verify IP SLA
- Configure and verify tracking objects
- Configure and verify Cisco Net Flow

SWITCH (300-115)

1. Layer 2 Technologies

- Configure and verify switch administration
- Configure and verify Layer 2 protocols
- Configure and verify VLANs
- Configure and verify trunking

- Configure and verify Ether Channels
- Configure and verify spanning tree
- Configure and verify other LAN switching technologies
- Describe chassis virtualization and aggregation technologies

2. Infrastructure Security

- Configure and verify switch security features
- Describe device security using Cisco IOS AAA with TACACS+ and RADIUS

3. Infrastructure Services

- Configure and verify first-hop redundancy protocols

TSHOOT (300-135)

1. Network Principles

- Use Cisco IOS troubleshooting tools
- Apply troubleshooting methodologies

2. Layer 2 Technologies

- Troubleshoot switch administration
- Troubleshoot Layer 2 protocols
- Troubleshoot VLANs
- Troubleshoot trunking
- Troubleshoot Ether Channels
- Troubleshoot spanning tree
- Troubleshoot other LAN switching technologies
- Troubleshoot chassis virtualization and aggregation technologies

3. Layer 3 Technologies

- Troubleshoot IPv4 addressing and subnetting
- Troubleshoot IPv6 addressing and subnetting
- Troubleshoot static routing
- Troubleshoot default routing
- Troubleshoot administrative distance
- Troubleshoot passive interfaces
- Troubleshoot VRF lite
- Troubleshoot filtering with any protocol
- Troubleshoot between any routing protocols or routing sources
- Troubleshoot manual and auto summarization with any routing protocol
- Troubleshoot policy-based routing
- Troubleshoot suboptimal routing
- Troubleshoot loop prevention mechanisms
- Troubleshoot RIPv2
- Troubleshoot EIGRP neighbor relationship and authentication

- Troubleshoot loop free path selection
- Troubleshoot EIGRP operations
- Troubleshoot EIGRP stubs
- Troubleshoot EIGRP load balancing
- Troubleshoot EIGRP metrics
- Troubleshoot EIGRP for IPv6
- Troubleshoot OSPF neighbor relationship and authentication
- Troubleshoot network types, area types, and router types
- Troubleshoot OSPF path preference
- Troubleshoot OSPF operations
- Troubleshoot OSPF for IPv6
- Troubleshoot BGP peer relationships and authentication
- Troubleshoot e-BGP



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