

JNCIP-SP Exam Objectives (Exam: JN0-660)

This list provides a general view of the skill set required to successfully complete the specified certification exam. Topics listed are subject to change.

OSPF

- Describe the concepts, operation and functionality of OSPFv2 and OSPFv3
- OSPF LSA types
- OSPF area types and operations
- LSA flooding through an OSPF multi-area network
- DR/BDR operation
- SPF algorithm
- Metrics, including external metric types
- Authentication options
- Summarize and restrict routes
- Virtual links
- OSPFv2 vs OSPFv3
- Given a scenario, demonstrate knowledge of how to configure and monitor single-area and multi-area OSPF
- Implement OSPF routing policy

IS-IS

- Describe the concepts, operation and functionality of IS-IS
- IS-IS link-state PDU (LSP) types
- IS-IS areas/levels and operations
- LLSP flooding through an IS-IS multi-area network
- DIS operation
- SPF algorithm
- Metrics, including wide metrics
- Authentication options
- Route summarization and route leaking
- Given a scenario, demonstrate knowledge of how to configure and monitor single-area and multi-area IS-ISa
- Implement IS-IS routing policy

BGP

- Describe the concepts, operation and functionality of BGP
- BGP route selection process
- Next hop resolution
- BGP attributes – concept and operation
- BGP communities
- Regular expressions
- Multipath
- Multihop
- Load balancing
- Advanced BGP options
- BGP route damping
- Multiprotocol BGP
- Given a scenario, demonstrate knowledge of how to configure and monitor BGP
- Route reflection
- Confederations
- Describe the concepts, operation and functionality of BGP scaling mechanisms
- Implement BGP routing policy

Class of Service (CoS)

- Describe the concepts, operation and functionality of JunosCoS
- CoS processing on Junos devices
- CoS header fields
- Forwarding classes
- Classification
- Packet loss priority
- Policers, including tricolor marking and hierarchical policers
- Schedulers
- Drop profiles
- Shaping
- Rewrite rules
- Hierarchical scheduling (H-CoS) characteristics (high-level only)
- Given a scenario, demonstrate knowledge of how to configure and monitor CoS

IP Multicast

- Describe the concepts, operation and functionality of IP multicast
- Components of IP multicast, including multicast addressing
- IP multicast traffic flow
- Any-Source Multicast (ASM) vs. Source-Specific Multicast (SSM)
- RPF – concept and operation
- IGMP
- PIM dense-mode and sparse-mode
- Rendezvous point (RP) – concept, operation, discovery, election
- SSM – requirements, benefits, address ranges
- MSDP, including single and multi-PIM domains
- Anycast RP
- Routing policy and scoping
- Given a scenario, demonstrate knowledge of how to configure and monitor IGMP, PIM-DM, PIM-SM (including SSM) and MSDP
- Implement IP multicast routing policy

MPLS

- Describe the concepts, operation and functionality of MPLS
- RSVP and LDP operation
- Primary/secondary paths
- LSP metrics, including interaction with IGP metrics
- LSP priority and preemption
- Fast reroute, link protection and node protection
- LSP optimization
- Routing table integration options for traffic engineering
- RSVP reservation styles
- Routing policy to control path selection
- Advanced MPLS features
- Describe the concepts, operation and functionality of Constrained Shortest Path First (CSPF)
- TED
- IGP extensions
- CSPF algorithm – selecting the best path
- Tie-breaking options
- Administrative groups
- Advanced CSPF options
- Given a scenario, demonstrate knowledge of how to configure and monitor MPLS, LDP and RSVP
- RSVP-signaled and LDP-signaled LSPs

- Traffic protection mechanisms
- CSPF
- Implement MPLS routing policy

Layer 3 VPNs

- Describe the concepts, operation and functionality of Layer 3 VPNs
- Traffic flow – control and data planes
- Full mesh vs. hub-and-spoke topology
- VPN-IPv4 addressing
- Route distinguishers
- Route targets
- Route distribution
- Site of origin
- Sham links
- vrf-table-label
- Layer 3 VPN scaling
- Layer 3 VPN Internet access options
- Given a scenario, demonstrate knowledge of how to configure and monitor the components of Layer 3 VPNs
- Describe the concepts, operation and functionality of multicast VPNs
- Next-generation MVPNs (NG-MVPN)
- Flow of control and data traffic in a NG-MVPN
- Describe Junos support for carrier-of-carriers and interprovider VPN models

Layer 2 VPNs

- Describe the concepts, operation and functionality of BGP Layer 2 VPNs
- Traffic flow – control and data planes
- Forwarding tables
- Connection mapping
- Layer 2 VPN NLRI
- Route distinguishers
- Route targets
- Layer 2 VPN scaling
- Describe the concepts, operation and functionality of LDP Layer 2 circuits
- Traffic flow – control and data planes
- Virtual circuit label
- Layer 2 interworking

- Describe the concepts, operation and functionality of VPLS
- Traffic flow – control and data planes
- BGP VPLS label distribution
- LDP VPLS label distribution
- Route targets
- Site IDs
- Given a scenario, demonstrate knowledge of how to configure and monitor Layer 2 VPNs
- BGP Layer 2 VPNs
- LDP Layer 2 circuits
- VPLS

Automation

- Demonstrate basic knowledge of using automation scripts
- Operation scripts
- Commit scripts
- Event scripts