

ENTERPRISE ROUTING AND SWITCHING, SPECIALIST (JNCIS-ENT)

Earn a specialist-level certification that demonstrates competency in networking technology, plus enterprise routing and switching implementations with the Junos operating system.

One of four certifications in the Enterprise Routing and Switching track, the JNCIS-ENT, specialist is designed for networking professionals wanting to advance their knowledge of routing and switching implementations using the Junos® operating system. During the written exam, you verify your basic understanding of routing and switching technologies and related platform configuration and troubleshooting skills.

Exam Preparation

recommend the following resources to help you prepare for your exam. However, these resources aren't required, and using them doesn't guarantee you'll pass the exam.

Recommended Training

- [Junos OS Intermediate Routing \(JIR\)](#)
- [Junos OS Enterprise Switching \(JEX\)](#)

Exam Resources

- Industry/product knowledge
- [Juniper TechLibrary](#)

Additional Preparation

- [Juniper Learning Portal](#)

Exam Objectives

Here is a high-level view of the skillset required to successfully complete the JNCIS-ENT certification exam.

Layer 2 Switching or VLANs

Identify the concepts, operations, or functionalities of Layer 2 switching for the Junos OS:

- Bridging components
- Frame processing

Describe the concepts, benefits, or functionalities of VLANs:

- Ports
- Tagging

- Native VLANs and voice VLANs
- Inter-VLAN routing

Demonstrate knowledge how to configure, monitor, or troubleshoot Layer 2 switching or VLANs:

- Interfaces and ports
- VLANs
- Inter-VLAN routing

Spanning Tree

Describe the concepts, benefits, operations, or functionalities of the Spanning Tree Protocol (STP):

- STP and Rapid Spanning Tree Protocol (RSTP) concepts
- Port roles and states
- Bridge Protocol Data Units (BPDUs)
- Convergence and reconvergence

Demonstrate knowledge how to configure, monitor, or troubleshoot Spanning Tree:

- STP
- RSTP

Layer 2 Security

Identify the concepts, benefits, or operations of various Layer 2 protection or security features:

- BPDU, loop or root protection
- Port security, including MAC limiting, DHCP snooping, Dynamic ARP inspection (DAI) or IP source guard
- MACsec
- Storm control

Identify the concepts, benefits, or operations of Layer 2 firewall filters:

- Filter types
- Processing order
- Match criteria and actions

Demonstrate knowledge how to configure, monitor, or troubleshoot Layer 2 security:

- Protection
- Port security
- Storm control
- Firewall filter configuration and application

Protocol-Independent Routing

Identify the concepts, operations, or functionalities of various protocol-independent routing components:

- Static, aggregate, and generated routes
- Martian addresses
- Routing instances, including routing information base (RIB) groups
- Load balancing
- Filter-based forwarding

Demonstrate knowledge how to configure, monitor, or troubleshoot various protocol-independent routing components:

- Static, aggregate, and generated routes
- Load balancing
- Filter-based forwarding

OSPF

Describe the concepts, operations, or functionalities of OSPF:

- Creation and management of VMs in OpenStack
- Automation using HEAT templates in Yet Another Markup Language (YAML)
- OpenStack UI usage
- OpenStack networking plugins
- OpenStack security groups

Demonstrate knowledge how to configure, monitor, or troubleshoot OSPF:

- Areas, interfaces, and neighbors
- Additional basic options
- Routing policy application
- Troubleshooting tools (ping, traceroute, traceoptions, show commands, logging)

IS-IS

Describe the concepts, operations, or functionalities of IS-IS:

- Link-state database
- IS-IS Protocol Data Units (PDUs)
- Type, length, and values (TLVs)
- Adjacencies and neighbors
- Levels and areas
- Designated intermediate system (DIS)
- Metrics

Demonstrate knowledge of how to configure, monitor, or troubleshoot IS-IS:

- Levels, interfaces, and adjacencies
- Additional basic options
- Routing policy application
- Troubleshooting tools (ping, traceroute, traceoptions, show commands, logging)

BGP

Describe the concepts, operations, or functionalities of BGP:

- BGP basic operation
- BGP message types
- Attributes
- Route/path selection process
- Internal and external BGP (IBGP and EBGP) functionality and interaction

Demonstrate knowledge of how to configure, monitor, or troubleshoot BGP:

- Groups and peers
- Additional basic options
- Routing policy application
- Troubleshooting tools (ping, traceroute, traceoptions, show commands, logging)

Tunnels

Identify the concepts, requirements, or functionalities of IP tunneling:

- Tunneling applications and considerations
- Generic Routing Encapsulation (GRE)
- IP-IP

Demonstrate knowledge of how to configure, monitor, or troubleshoot IP tunnels:

- GRE
- IP-IP
- Troubleshooting tools (ping, traceroute, traceoptions, show commands, logging)

High Availability

Identify the concepts, benefits, applications, or requirements for high availability in a Junos OS environment:

- Link aggregation groups (LAG)
- Redundant trunk groups (RTG)
- Virtual chassis
- Graceful restart
- Graceful Routing Engine switchover (GRES)
- Nonstop active routing (NSR)
- Nonstop bridging (NSB)

- Bidirectional Forwarding Detection (BFD)
- Virtual Router Redundancy Protocol (VRRP)
- Unified In-Service Software Upgrade (ISSU)

Demonstrate knowledge of how to configure, monitor, or troubleshoot high availability components:

- LAG and RTG
- Virtual chassis
- Graceful restart, GRES, NSB, and NSR
- VRRP
- ISSU
- Troubleshooting tools (traceoptions, show commands, logging)

Exam Details

Exam questions are derived from the recommended training and the exam resources listed above. Pass/fail status is available immediately after taking the exam. The exam is only provided in English.

Exam Code

JNO-351

Prerequisite Certification

JNCIA-Juniper

Delivered by

Pearson VUE

Exam Length

90 minutes

Exam Type

65 multiple-choice questions

Software Versions

- Junos 23.1

Recertification

Juniper certifications are valid for three years. For more information, please see [Recertification](#).

About Juniper Networks

At Juniper Networks, we are dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability and equality.

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