

## Advanced Junos Enterprise Switching (AJEX)

**Duration:** 2 Days    **Course Code:** JUN\_AJEX

### Overview:

This two-day course is designed to provide detailed coverage of VLAN operations, Multiple Spanning Tree Protocol (MSTP) and VLAN Spanning Tree Protocol (VSTP), authentication and access control for Layer 2 networks, IP telephony features, class of service (CoS) and monitoring and troubleshooting tools and features supported on the EX Series Ethernet Switches. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos operating system (OS) and in monitoring device and protocol operations. This course uses Juniper Networks EX 4300 Series Ethernet switches for the hands-on component, but the lab environment does not preclude the course from being applicable to other Juniper hardware platforms running the Junos OS. This course is based on Junos OS Release 21.4R1.12.

#### Course Level

Advanced Junos Enterprise Switching (AJEX) is an advanced-level course.

#### Relevant Juniper Product

• EX Series • QFX Series

### Target Audience:

Individuals responsible for configuring and monitoring EX Series switches using Junos Enhanced Layer 2 Software (ELS)

### Objectives:

- Restrict traffic flow within a VLAN.
- Manage dynamic VLAN registration.
- Tunnel Layer 2 traffic through Ethernet networks.
- Review the purpose and operations of a spanning tree.
- Implement multiple spanning-tree instances in a network.
- Implement one or more spanning-tree instances for a VLAN.
- List the benefits of implementing end-user authentication.
- Explain the operations of various access control features.
- Configure and monitor various access control features.
- Describe processing considerations when multiple authentication and access control features are enabled.
- Describe some common IP telephony deployment scenarios.
- Describe features that facilitate IP telephony deployments.
- Configure and monitor features used in IP telephony deployments.
- Explain the purpose and basic operations of CoS.
- Describe CoS features used in Layer 2 networks.
- Configure and monitor CoS in a Layer 2 network.
- Describe a basic troubleshooting method.
- List common issues that disrupt network operations.
- Identify tools used in network troubleshooting.
- Use available tools to resolve network issues.

### Prerequisites:

- Basic networking knowledge and an understanding of the OSI reference model and the TCP/IP protocol suite
- Completion of the Introduction to the Junos Operating System (IJOS) course, or equivalent knowledge
- Completion of Junos Enterprise Switching (JEX) course, or equivalent knowledge

### Testing and Certification

JNCIP-ENT exam topics are based on the content of the recommended instructor-led training courses, as well as the additional resources.

- Exam code: JN0-649
- Written exam
- Administered by Pearson VUE
- Exam length: 120 minutes
- Exam type: 65 multiple-choice questions
- Pass/fail status is available immediately

- Junos OS 21.2

The JNCIP-ENT certification is valid for three years.

Exams can be purchased at an additional cost - please ask for details  
- and scheduled at <https://home.pearsonvue.com/junipernetworks/>

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## Follow-on-Courses:

JNCIE-ENT Certification Self-Study Bundle

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## Content:

Day 1	<ul style="list-style-type: none"> <li>• Configure and monitor MAC radius access control features</li> </ul>	<ul style="list-style-type: none"> <li>• Explain basic troubleshooting flow</li> </ul>
Course Introduction	<ul style="list-style-type: none"> <li>• Configure and monitor captive portal access control features</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate troubleshooting steps</li> </ul>
VLAN Traffic Management	<ul style="list-style-type: none"> <li>• Describe processing considerations when multiple authentication and access control features are enabled</li> </ul>	Implement Monitoring and Troubleshooting Layer 2 Enterprise Networks
<ul style="list-style-type: none"> <li>• Assign user traffic to VLANs</li> <li>• Explain how to restrict traffic flows within a VLAN</li> </ul>	Lab 3: Authentication and Access Control	<ul style="list-style-type: none"> <li>• List common issues that disrupt network operations</li> <li>• Identify tools used in network troubleshooting</li> </ul>
Advanced Ethernet Switching	Day 2	<ul style="list-style-type: none"> <li>• Use available tools to resolve network issues</li> </ul>
<ul style="list-style-type: none"> <li>• Configure dynamic VLAN registration using MVRP</li> <li>• Implement Layer 2 tunnel traffic through Ethernet networks</li> </ul>	IP Telephony Features—Power over Ethernet, Neighbor Discovery using LLDP	Lab 6: Monitoring and Troubleshooting
Lab 1: Advanced Ethernet Switching	<ul style="list-style-type: none"> <li>• Describe some common IP telephony deployment scenarios</li> </ul>	Appendix A: Junos Space Network Director
MSTP	<ul style="list-style-type: none"> <li>• Explain power over Ethernet feature of IP telephony</li> <li>• Describe neighbor discovery feature of IP telephony</li> </ul>	<ul style="list-style-type: none"> <li>• Describe Junos Space Network Director</li> <li>• Configure Junos Space Network Director</li> </ul>
<ul style="list-style-type: none"> <li>• Describe a spanning tree's purpose and operations</li> <li>• Implement multiple spanning tree instances in a network</li> </ul>	IP Telephony Features—Voice LAN	Appendix B: Introduction to Mist AI Integration
<ul style="list-style-type: none"> <li>• Overview of Authentication Processing</li> </ul>	<ul style="list-style-type: none"> <li>• Describe voice VLAN feature of IP telephony</li> <li>• Implement the IP telephony features</li> </ul>	<ul style="list-style-type: none"> <li>• List the wired assurance options and the supported Juniper switching devices</li> <li>• Describe provisioning and deployment process</li> </ul>
VSTP	Lab 4: Deploying IP Telephony Features	Appendix C: Mist Wired Assurance
<ul style="list-style-type: none"> <li>• Describe spanning tree instances for a VLAN</li> <li>• Implement spanning tree instances for a VLAN</li> </ul>	Class of Service Overview	<ul style="list-style-type: none"> <li>• Describe the deployment options</li> <li>• Explain wired assurance SLE and their classifiers</li> </ul>
Lab 2: Advanced Spanning Tree	<ul style="list-style-type: none"> <li>• Configure and monitor class of service in a Layer 2 network</li> <li>• Perform class of service troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the role of Mist within campus and branch architecture</li> </ul>
Authentication and Access Control	Implement Class of Service	Appendix D: ELS and Non-ELS Configuration Examples
<ul style="list-style-type: none"> <li>• List the benefits of implementing end-user authentication</li> </ul>	<ul style="list-style-type: none"> <li>• Configure and monitor class of service in a Layer 2 network</li> </ul>	

- Describe the operations of 802.1X access control features

Access Control Features—MAC RADIUS and Captive Portal

- Perform class of service troubleshooting

Lab 5: Class of Service

Introduction to Monitoring and Troubleshooting Layer 2 Enterprise Networks

- Configure switch options

- Describe IRB and VLAN Interfaces

- Describe Q-in-Q Tagging

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### Additional Information:

Delegates will receive an official set of e-kit courseware approximately 1 week prior to the start of the course.

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### Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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