# Advanced Junos Enterprise Switching (AJEX)

## Duration: 2 Days     Course Code: JUN_AJEX     Delivery Method: Virtual Learning

## 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

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected.  Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

## 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

## 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

(IJOS) course, or equivalent knowledge

• Completion of Junos Enterprise Switching (JEX) course, or equivalent knowledge

• 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/

## Follow-on-Courses:

JNCIE-ENT Certification Self-Study Bundle

## Content:

Day 1

Course Introduction

VLAN Traffic Management

• Assign user traffic to VLANs

• Explain how to restrict traffic flows within a VLAN

Advanced Ethernet Switching

• Configure dynamic VLAN registration using MVRP

• Implement Layer 2 tunnel traffic through Ethernet networks

Lab 1: Advanced Ethernet Switching

MSTP

• Describe a spanning tree's purpose and operations

• Implement multiple spanning tree instances in a network

• Overview of Authentication Processing

VSTP

• Describe spanning tree instances for a VLAN

• Implement spanning tree instances for a VLAN

Lab 2: Advanced Spanning Tree

Authentication and Access Control

• List the benefits of implementing end-user authentication

• Configure and monitor MAC radius access control features

• Configure and monitor captive portal access control features

• Describe processing considerations when multiple authentication and access control features are enabled

Lab 3: Authentication and Access Control

Day 2

IP Telephony Features—Power over Ethernet, Neighbor Discovery using LLDP

• Describe some common IP telephony deployment scenarios

• Explain power over Ethernet feature of IP telephony

• Describe neighbor discovery feature of IP telephony

IP Telephony Features—Voice LAN

• Describe voice VLAN feature of IP telephony

• Implement the IP telephony features

Lab 4: Deploying IP Telephony Features

Class of Service Overview

• Configure and monitor class of service in a Layer 2 network

• Perform class of service troubleshooting

Implement Class of Service

• Configure and monitor class of service in a Layer 2 network

• Explain basic troubleshooting flow

• Evaluate troubleshooting steps

Implement Monitoring and Troubleshooting Layer 2 Enterprise Networks

• List common issues that disrupt network operations

• Identify tools used in network troubleshooting

• Use available tools to resolve network issues

Lab 6: Monitoring and Troubleshooting

Appendix A: Junos Space Network Director

• Describe Junos Space Network Director

• Configure Junos Space Network Director

Appendix B: Introduction to Mist AI Integration

• List the wired assurance options and the supported Juniper switching devices

• Describe provisioning and deployment process

Appendix C: Mist Wired Assurance

• Describe the deployment options

• Explain wired assurance SLE and their classifiers

• Describe the role of Mist within campus and branch architecture

Appendix D: ELS and Non-ELS Configuration Examples

• 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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