Deploying and Managing Juniper Wireless Networks with Mist AI

COURSE OVERVIEW

This four-day, intermediate-level course provides students with the knowledge required to work with enterprise wireless technologies and Juniper Driven by Mist AI™ wireless networks. Students will gain in-depth knowledge of wireless technologies and Juniper Mist™ technologies and learn how to configure and use them. Through demonstrations and hands-on labs, students will gain experience with the features and functionalities of Mist AI-driven wireless networks. Key topics include Wi-Fi basics, Juniper Mist architecture and usage, Juniper Wi-Fi implementation, location-based services, Juniper Mist application of artificial intelligence and machine learning, and Wi-Fi troubleshooting. The course is on the Juniper Mist™ cloud and Juniper® AP45 High-Performance Access Point.

COURSE LEVEL

Deploying and Managing Juniper Wireless Networks with Mist AI is an intermediate-level course.

AUDIENCE

This course benefits individuals working with enterprise wireless networks and applying artificial intelligence to their activities.

PREREQUISITES

- Basic TCP/IP skills.
- General networking.
- Completion of the *Introduction to Juniper Mist AI* course.

RELATED JUNIPER PRODUCTS

- Mist AI, Mist cloud, Juniper AP45 (and others), Juniper Mist Edge™

RELATED CERTIFICATION

- JNCIS-MistAI

RECOMMENDED NEXT COURSE

- *Automating Juniper Mist AI Enterprise*

OBJECTIVES

- Describe the IEEE 802.11 standard and amendments.
- Define Wi-Fi frequency bands.
- Apply radio frequency (RF) basics in Wi-Fi networks.
- Identify how modulation and coding make up wireless networks.
- Describe the interworkings of association and roaming.
- Describe network contention factors.
- Define wireless LANs (WLANs).
- Describe Juniper Mist.
- Describe Juniper Mist configuration objects for wireless networks.
- Describe Juniper Access Points and their configuration options.
- Describe Juniper Mist's WLAN configuration objects.
- Describe Juniper Mist™ Edge.
- Describe the Juniper Mist guest options.
- Describe wireless extensible LAN (WxLAN) policies and how to apply them.
- Examine wireless intrusion detection and prevention from Juniper Mist.
- Interpret wireless service-level expectations (SLEs) in relation to users.
- Define events and insights from the Juniper Mist™ cloud.
- Summarize Mist AI's radio resource management (RRM).
- Review additional data to create dashboards and reports.
- Evaluate machine learning and artificial intelligence.

- Summarize Marvis® Virtual Network Assistant queries.
- Describe the functions of Marvis Actions and Marvis® Minis.
- Describe the concepts and methods of location services.
- Examine the Juniper Mist™ User Engagement and Juniper Mist™ Asset Visibility cloud services.

COURSE CONTENTS

DAY 1

Module 1: Wi-Fi Standards

- Describe the purpose of the 802.11 standard and its physical layer amendments

Module 2: Wi-Fi Radio Frequency Bands

- Describe the 2.4-GHz frequency band used for WLANs and their channels
- Describe the 5-GHz frequency band used for WLANs and their channels
- Describe the 6-GHz frequency band used for WLANs and their channels

Module 3: Applying Radio Frequency Basics to Wireless Networks

- Describe the properties of an RF wave
- Convert dBm to Milliwatts using RF math
- Explain factors that contribute to RF signals and how they relate to WLANs

Module 4: Modulation and Coding for Wireless Networks

- Explain RF modulation and how it relates to WLAN data rates
- Describe the relationship between SNR and MCS

Module 5: Understanding Client Association and Roaming

- Describe the 802.11 state machine and the steps required for an 802.11 station to connect to an access point
- Explain the protocols used in a client's connection to the network

Module 6: Network Contention Factors

- Describe 802.11 contention

Module 7: WLAN Architectures and Life Cycle

- Differentiate WLAN architectures
- Describe the stages of the WLAN life cycle
- Assess Network Planners

Module 8: Getting Started with Juniper Mist

- Examine the Juniper Mist architecture
- Create a Juniper Mist account
- Summarize Juniper Mist subscriptions
- Summarize the MSP dashboard

Lab 1: Juniper Mist Portal and the Initial Setup

DAY 2

Module 9: Juniper Mist Configuration Objects

- Explain the difference between organization-level and site-level configuration objects
- Define Juniper Mist configuration objects and their uses

Lab 2: Remote Site and Site Groups and Variables

Module 10: Juniper Access Points

- Summarize access points and their connectivity
- Describe the boot procedure for a Juniper Access Point, its requirements, and the process of adding a Juniper Access Point to the Juniper Mist cloud
- Describe the common AP configuration settings
- Use the Juniper Access Points dashboard to get information about an AP

Module 11: Juniper Mist Edge

- Identify popular use cases
- Outline the features and benefits
- Categorize the product options
- Describe the installation process
- Review the management of Juniper Mist Edge
- Troubleshoot the device and its connectivity

Module 12: WLANs

- Define SSIDs, BSSIDs, and their functions
- Review additional WLAN configuration options
- Explain WLAN security options and how they are configured in a Juniper Mist WLAN configuration object
- Describe data rates and how they are configured in Juniper Mist
- Explain SSID strategies for multiband deployments

DAY 3

Module 13: Guest Portal

- Describe the Juniper Mist guest options

Module 14: Juniper Mist WxLAN Policies

- Explain WxLAN policies and how they are configured

Lab 3: WLANs and WxLAN Policy

Module 15: Juniper Mist Wi-Fi Security

- Describe WLAN security threats detected by the Juniper Mist WLAN system

Module 16: Juniper Mist Service-Level Expectations

- List Wireless Assurance SLEs and their classifiers

Module 17: Juniper Mist Events and Insights

- Describe site, AP, and client events
- Explain the packet capture functionality of the Juniper Mist system
- Describe the 802.11 MAC header and list the 802.11 MAC frame types

Lab 4: Troubleshooting Using SLEs

Module 18: Juniper Mist Radio Resource Management

- Describe Mist AI's radio resource management operations and their purposes

DAY 4

Module 19: Juniper Mist Dashboards and Reports

- Evaluate custom dashboards and report options

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Education Services

Module 20: Juniper Mist Artificial Intelligence and Troubleshooting Options

- Assess Juniper Mist's application of artificial intelligence
- Review the reactive and proactive troubleshooting methodologies

Module 21: Marvis Queries

- Explain the difference between Marvis natural language and Marvis query language

Module 22: Marvis Actions

- Describe the functions of Marvis Actions
- Explain the functions of Marvis Minis

Lab 5: Marvis

Module 23: Location-Based Services

- Describe the real-time location system
- Review Wi-Fi components for location services

Module 24: User Engagement and Asset Visibility

- Explain Juniper Mist's approach to user engagement
- Examine Juniper Mist's asset visibility capabilities

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