Automating Juniper Mist AI Enterprise

COURSE OVERVIEW

This advanced five-day course explores how to configure and manage a distributed enterprise. The distributed enterprise includes Juniper Mist AI solutions for Juniper Mist™ WAN Assurance, Juniper Mist™ Wired Assurance, Juniper Mist™ Wi-Fi Assurance, and Juniper Mist Access Assurance. Users can deploy and manage distributed enterprises from the Juniper Mist™ GUI, automation methods, or a combination of both. Key topics include automation tools and methodologies as applied to Juniper Mist AI solutions.

Through demonstrations and hands-on labs, students will gain experience with the features of Juniper Networks® EX Series Switches, Juniper Networks® SSR Series Routers, wireless access points, and the Juniper Mist GUI and APIs. Students will also acquire experience with Juniper Mist features in a programmatic way.

COURSE LEVEL

Advanced

AUDIENCE

Individuals responsible for accessing and using Mist AI data for business intelligence and operations

PREREQUISITES

- Basic networking (wired and wireless) knowledge
- Understanding of OSI reference model and the TCP/IP protocol suite
- Experience with Juniper Mist products and solutions
- Basic automation and scripting knowledge, Python knowledge recommended
- Completion of the following courses:
  - *Introduction to Juniper Platform Automation and NetDevOps*
  - *Deploying and Managing Wireless Networks with Juniper Mist AI*
  - *Deploying and Managing Wired Networks for Campus and Branch with Juniper Mist AI*
  - Deploying and Managing SD-WAN with Juniper Mist AI

RELATED JUNIPER PRODUCTS

- EX Series
- SRX Series
- Network Design
- Mist AI
- Session Smart Routers

RELATED CERTIFICATION

JNCIP-MistAI

CONTACT YOUR REGIONAL EDUCATION SERVICES TEAM:

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OBJECTIVES

- Associate AIOps to the distributed enterprise network.
- Summarize the distributed enterprise network with Juniper Mist AI.
- Explain the automation options for Juniper Mist.
- Refresh your Python basics.
- Explain how JSON and YAML are used for automation.
- Describe data templating with Jinja2.
- Describe how JupyterLab is used.
- Evaluate REST API tools and their uses.
- Use the Juniper Mist REST API with Python.
- Automate Juniper Mist Day 1 operations with Python.
- Execute Juniper Mist configuration with webhooks.
- Summarize 802.1x and EAP authentication.
- Examine RADIUS configuration and integration with Juniper Mist.
- Review Juniper Mist Access Assurance.
- Integrate Juniper Mist Edge with Juniper Mist Access Assurance.
- Implement security to a distributed enterprise network with Juniper Mist.
- Deploy a distributed enterprise architecture.
- Manage Day 2+ operations with the Mist API.

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COURSE CONTENTS

DAY 1

1 Associating AIOps to the Distributed Enterprise Network

- Define the requirements of a distributed enterprise network
- Compare AI and ML terminology
- Explain the basics of machine learning
- Define AIOps and its goals

2 Summarizing the Distributed Enterprise Network with Juniper Mist AI

- Explain the key concepts and terminology used in distributed networks
- Describe the components, portfolio, use cases, and architectures of Juniper Mist enterprise distributed networks
- Describe the Juniper Mist WAN Edge and AI-driven SD-WAN Assurance solution
- Define Juniper Mist Wired Assurance
- Define Juniper Mist Wireless Assurance
- Explain Juniper Mist Access Assurance
- Examine Marvis VNA for data center
- Define Juniper Mist Routing Assurance
- Explain Juniper Validated Designs

3 Automation Options for Juniper Mist

- Review Juniper Mist configuration templates
- Describe the available Juniper Mist APIs and their use cases
- Explain the REST API
- Explain the WebSockets API

4 Python Automation Toolkit, Part 1

- Refresh your Python Basics

5 Python Automation Toolkit, Part 2

- Explain how JSON and YAML are used for automation
- Describe data templating with Jinja2

DAY 2

6 Python Automation Toolkit, Part 3

- Describe how JupyterLab is used

Lab 1: Creating Jinja2 Templates and Introducing JupyterLab

7 Evaluating REST API Tools and Their Uses

- Review API tools and their uses
- Compare API tools and their use cases with Juniper Mist API

Lab 2: Using Basic Development Tools to Interact with the Juniper Mist REST API

8 Using the Juniper Mist REST API with Python

- Explain how to interact with the Mist API using Python requests
- Explain how to use the Mist API Python package

Lab 3: Performing Juniper Mist Operations with Python and the REST API

9 Automating Juniper Mist Day 1 Operations with Python

- Review the requirements for the Day 1 deployment
- Review the steps required to automate the deployment

Lab 4: Performing Juniper Mist Day 1 Operations using Python and the Juniper Mist REST API

10 Executing Juniper Mist Configuration with Webhooks

- Define a webhook API
- Describe how to use the Juniper Mist webhook API
- Describe the set of features available through the webhook API used by Juniper Mist

Lab 5: Executing Juniper Mist Webhooks

COURSE CONTENTS (continued)

DAY 3

11 **Summarizing 802.1x and EAP Authentication**

- List the components of AAA
- Explain 802.1X operations
- Describe EAP operations
- Explain the different EAP types
- Describe How RADIUS works
- Describe RADIUS attributes (AVPs) and their uses
- Describe the RADIUS protocol and server

12 **Examining RADIUS Configuration and Integration with Juniper Mist**

- Explain how to integrate a third-party RADIUS server into Juniper Mist
- Explore the steps required to integrate ClearPass with Juniper Mist
- Analyze the correlation between RADIUS attribute labels and Juniper Mist and examine the outcomes of access requests
- Describe how SAML can integrate third-party identity providers with Juniper Mist

13 **Reviewing Juniper Mist Access Assurance**

- Define the zero-trust model
- Describe the Juniper Mist Access Assurance solution
- Define Juniper Mist Access Assurance and the supporting architecture and components

DAY 4

14 **Integrating Juniper Mist Edge with Juniper Mist Access Assurance**

- Define the features and benefits of Juniper Mist Edge
- Describe the Mist Edge installation
- Explain Mist Edge as a RADIUS server proxy
- Explain Mist Edge as a NAC proxy
- Summarize the DHCP relay service
- Review the Edge management

15 **Implementing Security to a Distributed Enterprise Network with Juniper Mist**

- List the security components in a distributed enterprise network
- Describe Juniper Mist WAN Edge SSR security features
- Describe Juniper Mist wireless security features
- Describe Juniper Mist policy configurations
- Discuss the Juniper Mist alerts options
- Review Juniper Mist's Premium Analytics security reports

Lab 6: Configuring Application Policy and Traffic Steering with Templates

16 **Deploying a Distributed Enterprise Architecture**

- Review the requirements for the Day 1 deployment
- Review the steps required to automate the deployment

Lab 7: Configuring Intersite Connectivity with Templates and Python

COURSE CONTENTS (continued)

DAY 5

17 | **Managing Day 2+ Operations with Juniper Mist**

- Review the available monitoring and troubleshooting tools
- Explain how to access statistics with the Mist API
- Explain how to access Insights with the Mist API
- Explain how to analyze data from the Mist API

Lab 8: Troubleshooting Day 2+ Operations with Juniper Mist

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