



# **Seminar on ISP Setup & Administration by Using Juniper**

**Presented By**  
**Md. Kabirul Kaiyum Rubel**  
**B. Sc. in ETE, CCNA, MTCINE, JNCIA-Junos, JNCIS-SP**  
**Assistant Manager**  
**Daffodil Online Ltd.**



# Topics we cover

- **Who is this course for**
- **Introduction of Juniper**
- **Why We Use Juniper**
- **Types of Juniper**
- **Career in Juniper**
- **Certification Level of Juniper**
- **Juniper Course Outline**



# Introduce Yourself

- 1. Name & Company**
- 2. Prior knowledge about Networking**
- 3. Prior knowledge about Router OS**
- 4. Expectation from this course**



# Who is this course for

- **Students who are interested to build their career in the R&S World**
- **Network Technician**
- **Network Support Engineer**



# Introduction of Juniper

**Juniper Networks, Inc. is an American multinational corporation headquartered in Sunnyvale, California. The company develops and markets networking products, including routers, switches, network management software, network security products, and software-defined networking technology.**

**Founder: Pradeep Sindhu**

**Founded: February 6, 1996**

**Number of employees: 10,191 (December 2021)**



# Why We Use Juniper

- **Modular Architecture**
- **More Secure Operating System**
- **Risk free, Separate active & candidate configuration**
- **Rollback facilities**
- **Low cost router with huge features than others**
- **100% load balancing with full failover facility**
- **Maximum Throughput**

**And many more.....**





# Types of Juniper Devices

## 1. Routing Devices

**MX104: 80-Gbps capacity**

**MX204: 400 Gbps capacity**



# Types of Juniper Devices

## 2. Switching Devices

**EX2300 : Up to 176 Gbps**



**EX4600 : Up to 720 Gbps**





# Types of Juniper Devices

## 3. Security Devices

**SRX4200: Up to 80 Gbps**



**SRX4600: Up to 400 Gbps**



# Career in Juniper

- **Any ISP**
- **Any IIG**
- **Multinational Organization**
- **Financial Organization**
- **Etc.**



# Certification Level of Juniper

Certification Tracks	Associate Level	Specialist Level	Professional Level	Expert Level
Automation and DevOps	JNCIA-DevOps	JNCIS-DevOps	n/a	n/a
Cloud	JNCIA-Cloud	JNCIS-Cloud	JNCIP-Cloud	JNCIE-Cloud
Data Center	JNCIA-DC	JNCIS-DC	JNCIP-DC*	JNCIE-DC
Design	JNCDA	<ul style="list-style-type: none"> <li>JNCDS-DC</li> <li>JNCDS-SEC</li> <li>JNCDS-SP</li> </ul>	n/a	n/a
Enterprise Routing and Switching	JNCIA-Junos	JNCIS-ENT	JNCIP-ENT	JNCIE-ENT
Mist AI	JNCIA-MistAI	JNCIS-MistAI	n/a	n/a
Security	JNCIA-SEC	JNCIS-SEC	JNCIP-SEC	JNCIE-SEC
Service Provider Routing and Switching	JNCIA-Junos	JNCIS-SP	JNCIP-SP	JNCIE-SP

\* The JNCIS-ENT is an acceptable prerequisite for the JNCIP-DC.

More Info. <https://www.juniper.net/us/en/training/certification.html>



# **Juniper Training Outline**

## **Day\_01**

**Collision domains and broadcast domains**

**Function of routers and switches**

**Ethernet networks**

**Layer 2 addressing, including address resolution**

**Layer 3 / IP addressing including subnet masks**

**Decimal to binary conversion & vice-versa**

**IPv4 Addressing Details**

**Subnetting and supernetting**



# Juniper Training Outline

## Day\_02

**Hexadecimal to binary conversion & vice-versa**  
**IPv6 Addressing Details**  
**Subnetting and supernetting**  
**Longest match routing**  
**CoS**  
**Connection-oriented vs. connectionless protocols**



# Juniper Training Outline

## Day\_03

**Junos OS Fundamentals**  
**Software architecture**  
**Control plane**  
**Forwarding plane**  
**Routing Engine**  
**Packet Forwarding Engine**  
**Transit traffic processing**  
**Exception traffic**  
**EVE-ng LAB setup**





# Juniper Training Outline

## Day\_04

**User Interfaces**

**CLI functionality**

**CLI modes**

**CLI navigation**

**CLI Help**

**Filtering output**

**Active versus candidate configuration**

**Reverting to previous configurations**

**Modifying, managing, and saving configuration files**

**Viewing, comparing, and loading configuration files**

**J-Web (core/common functionality only)**



# Juniper Training Outline

## Day\_05

**Configuration Basics**

**Factory-default state**

**Initial configuration**

**User accounts**

**Login classes**

**User authentication methods**

**Interface types and properties**

**Configuration groups**

**Additional initial configuration elements,  
such as NTP, SNMP, and syslog**

**Configuration archival**

**Logging and tracing**

**Rescue configuration**



# Juniper Training Outline

## Day\_06

### **Operational Monitoring and Maintenance**

**Show commands**

**Monitor commands**

**Interface statistics and errors**

**Network tools, such as ping, traceroute, telnet, SSH, and so on**

**Junos OS installation and upgrades**

**Powering on and shutting down Junos devices**

**Root password recovery**



# Juniper Training Outline

## Day\_07

### **Routing Fundamentals**

**Traffic forwarding concepts**

**Routing tables**

**Routing versus forwarding tables**

**Route preference**

**Routing instances**

**Static routing**

**Advantages of and use cases for dynamic routing**



# Juniper Training Outline

## Day\_08

### **Routing Policy**

**Default routing policies**

**Import and export policies**

**Routing policy flow**

**Effect of policies on routes and routing tables**

**Policy structure and terms**

**Policy match criteria, match types, and actions**



# **Juniper Training Outline**

## **Day\_09**

### **Firewall Filters**

**Firewall filter concepts**

**Filter structure and terms**

**Filter match criteria and actions**

**Effect of filters on packets**

**Unicast reverse-path-forwarding (RPF)**





# Juniper Training Outline

## Day\_10

**Protocol-Independent Routing**

**Static, aggregate, and generated routes**

**Martian addresses**

**Routing instances, including routing information-  
base (RIB) (also known as routing table) group**

**Load balancing**

**Filter-based forwarding**



# Juniper Training Outline

## Day\_11

**Open Shortest Path First (OSPF)**

**Link-state database**

**OSPF packet types**

**Router ID**

**Adjacencies and neighbors**

**Designated router and backup designated router**

**OSPF area and router types**

**Link-state advertisement (LSA) packet type**

**Router interfaces types**

**OSPF Configuration**

**Routing policy application**

**Troubleshooting tools**



# Juniper Training Outline

## Day\_12

### **Border Gateway Protocol (BGP)**

**BGP basic operation**

**BGP message types**

**Attributes**

**Route/path selection process**

**Internal and external BGP (IBGP and EBGP)**

**Groups and peers**

**Additional basic options**

**Basic eBGP & iBGP configuration**



# Juniper Training Outline

## Day\_13

**Advanced BGP configuration  
Routing policy application  
OSPF, iBGP, eBGP LAB**



# Juniper Training Outline

## Day\_14

**IPv6 Configuration**

**Static Route**

**OSPFv3**

**BGP**

**GRE Tunnel**



# Juniper Training Outline

## Day\_15

**Switching devices**  
**Switch configuration**  
**VLAN configuration**  
**LACP configuration**





# **Juniper Training Outline**

## **Day\_16**

**Overview of the full course**  
**Feedback taking**  
**Project work**  
**Certificate giving ceremony**



# Suggested Information

- 1. WhatsApp/Messenger Group**
- 2. <https://www.juniper.net/us/en.html>**
- 3. <https://www.juniper.net/documentation>**
- 4. Juniper Study Material**
- 5. [www.google.com](http://www.google.com)**



# ANY QUERY





THANK YOU

