

CCNA Routing & Switching and MPLS at RailTel

By

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Packettracer

Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface.

The following simulation and labs were performed using Packettracer :-

1. VLAN in a single and multiple networks
2. Subnetting using switches and routers
3. Providing static routes to a system
4. Dynamic Routing protocols:
 - a. RIP
 - b. IGRP
 - c. OSPF
5. Creating autonomous systems
6. Implementing NAT and PAT
7. Using access lists to limit access to systems in a network
8. Setting a remote connection on a switch/router using telnet

Open Systems Interconnection Model (OSI model)

Sno.	Layer	Purpose
1.	Application Layer	<ul style="list-style-type: none">- Provides user interface- Consistes of protocols like HTTP,HTTPS,SMTP,POP3 etc.
2.	Presentation Layer	<ul style="list-style-type: none">- Presents data- Handles encryptions
3.	Session Layer	<ul style="list-style-type: none">- Keeps different applications' data seperate
4.	Transport Layer	<ul style="list-style-type: none">- Provides reliable or unreliable delivery- Performs error correction before retransmit
5.	Network Layer	<ul style="list-style-type: none">- Provides logical addressing, which routers use for path determination
6.	Data-Link Layer	<ul style="list-style-type: none">- Combines packets into bytes and bytes into frames- Provides access to media using MAC address- Performs error detection not correction
7.	Physical Layer	<ul style="list-style-type: none">- Moves bits between devices- Specifies voltage, wire speed, and pinout of cables

Topics Covered

- ✓ **IP Addressing**
- ✓ **Subnetting**
- ✓ **VLANs**
- ✓ **Router to Router Configuration**
- ✓ **Access Lists**
- ✓ **NAT and PAT**
- ✓ **Remote Connection**
- ✓ **DHCP**
- ✓ **MPLS**

A lab in Packettracer

