COMPUTER NETWORKS LAB ONE REPORT

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B. TECH COMPUTER SCIENCE AND ENGINEERING (SEC-C 3RD YEAR, 5TH SEMESTER)
(FROM SRM INSTITUTE OF SCIENCE AND TECHNOLOGY – TRICHY)

Introduction to Packet Tracer

Cisco Packet Tracer Overview

Cisco Packet Tracer is a network simulation tool that allows users to design, configure, and troubleshoot network topologies virtually. This software is widely used for educational purposes to gain hands-on experience in network design and management.

- **Installation**: Ensure Cisco Packet Tracer is installed on your computer. If not, download it from the Cisco Networking Academy website.
- **User Interface**: Upon opening Packet Tracer, familiarize yourself with the various tools and components available. The main components include the workspace, device selection panel, and simulation mode options.

Peer-to-Peer Communication Setup

Network Configuration

1. **Creating a New Network**:
    - Open Packet Tracer and create a new workspace.
2. **Adding Devices**:
    - Drag and drop two PCs from the device selection panel into the workspace.
3. **Connecting Devices**:
    - Use a copper straight-through cable to connect the FastEthernet0 port of PC0 to the FastEthernet0 port of PC1.
4. **Configuring IP Addresses**:
    - **PC0**:
        - IP Address: 192.168.1.1
        - Subnet Mask: 255.255.255.0

- **PC1**:
  - IP Address: 192.168.1.2
  - Subnet Mask: 255.255.255.0

5. **Testing Connectivity**:
   - Open the command prompt on PC0.
   - Use the command ping 192.168.1.2 to test connectivity to PC1.

Study of Network Cables and Color Codes

Types of Network Cables

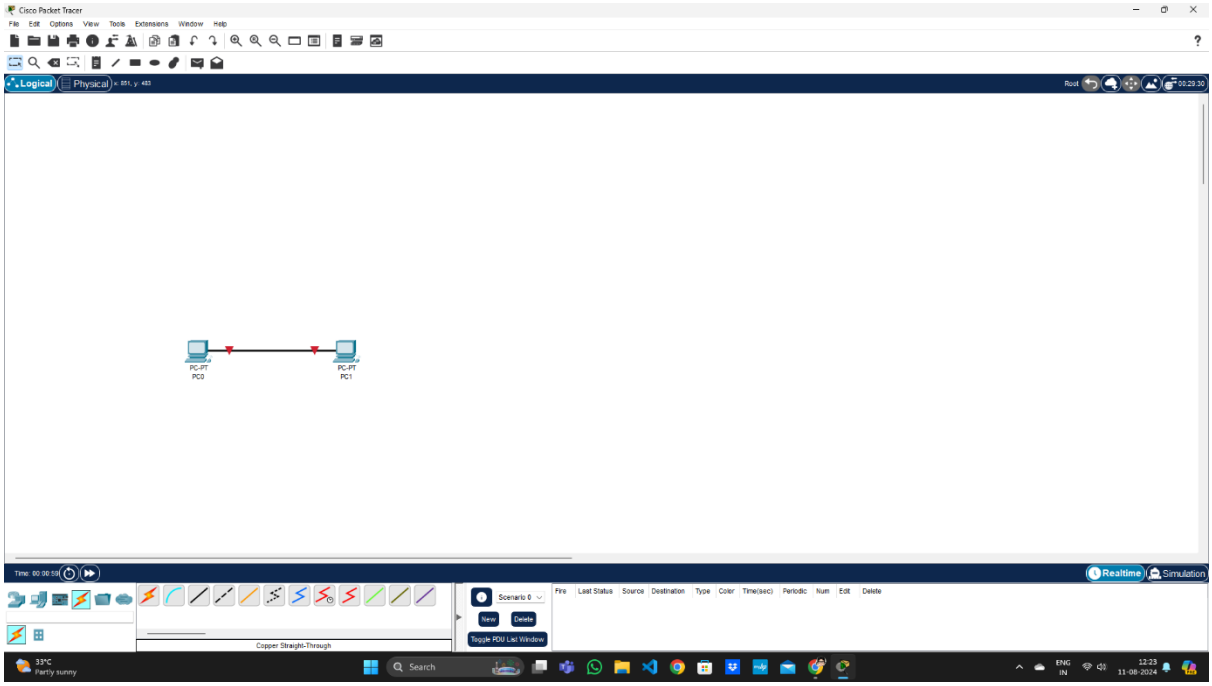
1. **Copper Straight-Through Cables**:
   - **Purpose**: Used to connect devices to network switches or routers.
   - **Color Code**:
     - **T568A**:
       - Pin 1: White/Green
       - Pin 2: Green
       - Pin 3: White/Orange
       - Pin 4: Blue
       - Pin 5: White/Blue
       - Pin 6: Orange
       - Pin 7: White/Brown
       - Pin 8: Brown
     - **T568B**:
       - Pin 1: White/Orange
       - Pin 2: Orange
       - Pin 3: White/Green
       - Pin 4: Blue
       - Pin 5: White/Blue
       - Pin 6: Green
       - Pin 7: White/Brown
       - Pin 8: Brown

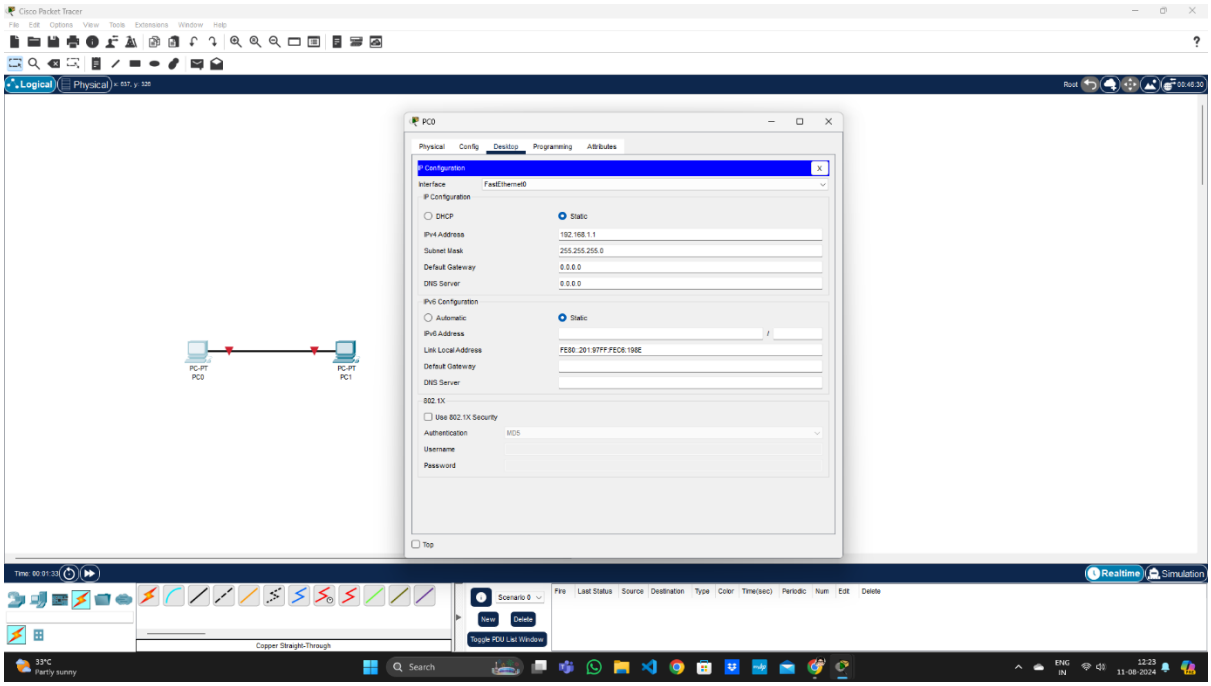
2. **Copper Crossover Cables**:
    - **Purpose**: Used to connect two similar devices directly (e.g., PC to PC).
    - **Color Code**:
        - **T568A** on one end and **T568B** on the other end.
3. **Fiber Optic Cables**:
    - **Purpose**: Used for high-speed and long-distance communication.
    - **Types**: Single-mode and Multi-mode, distinguished by their core size and the type of light they carry.

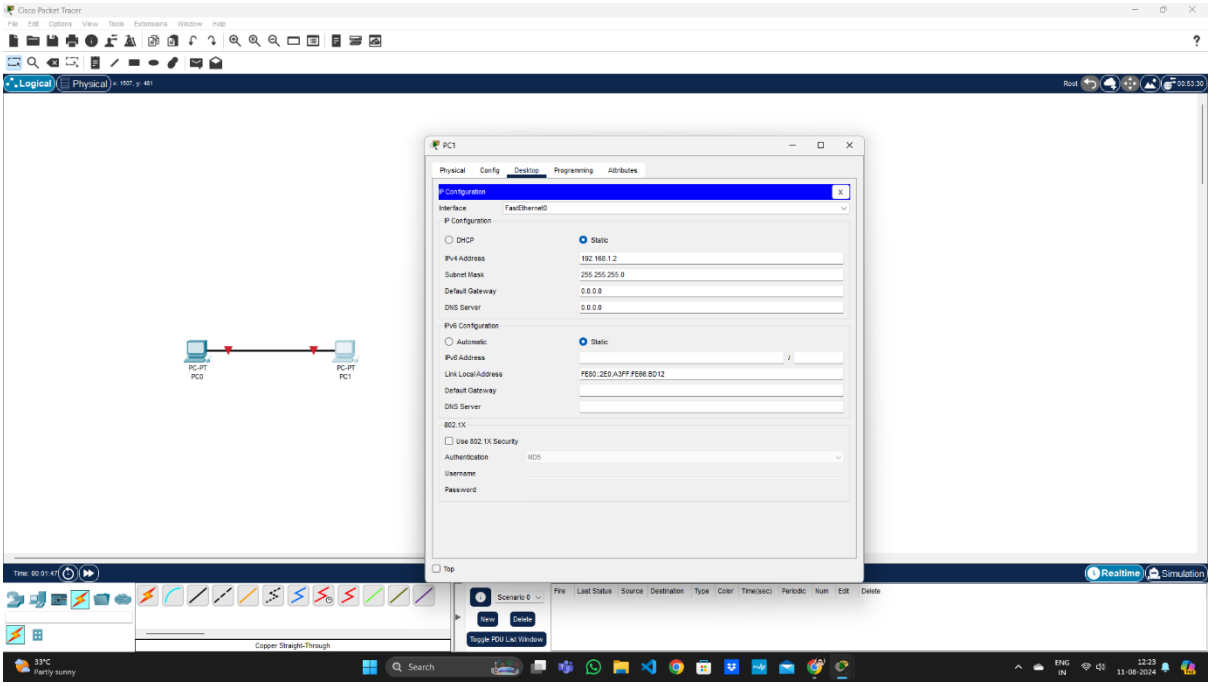
Purpose and Use

- **Straight-Through Cables**: Connect devices like PCs to network devices like switches or routers.
- **Crossover Cables**: Directly connect similar devices such as two PCs or two switches without an intermediary device.
- **Fiber Optic Cables**: Provide high-speed, long-distance connections between network devices.

Screenshots




Cisco Packet Tracer
Logical
Physical
PC0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
192.168.1.1
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:97FF:FEC6:198E
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
PC-PT
PC0
PC-PT
PC1
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Copper Straight-Through
33°C
Partly sunny
Search
ENG
IN
12:23
11-08-2024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IPv6 Address
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FE80::2E0:A3FF:FE66:BD12
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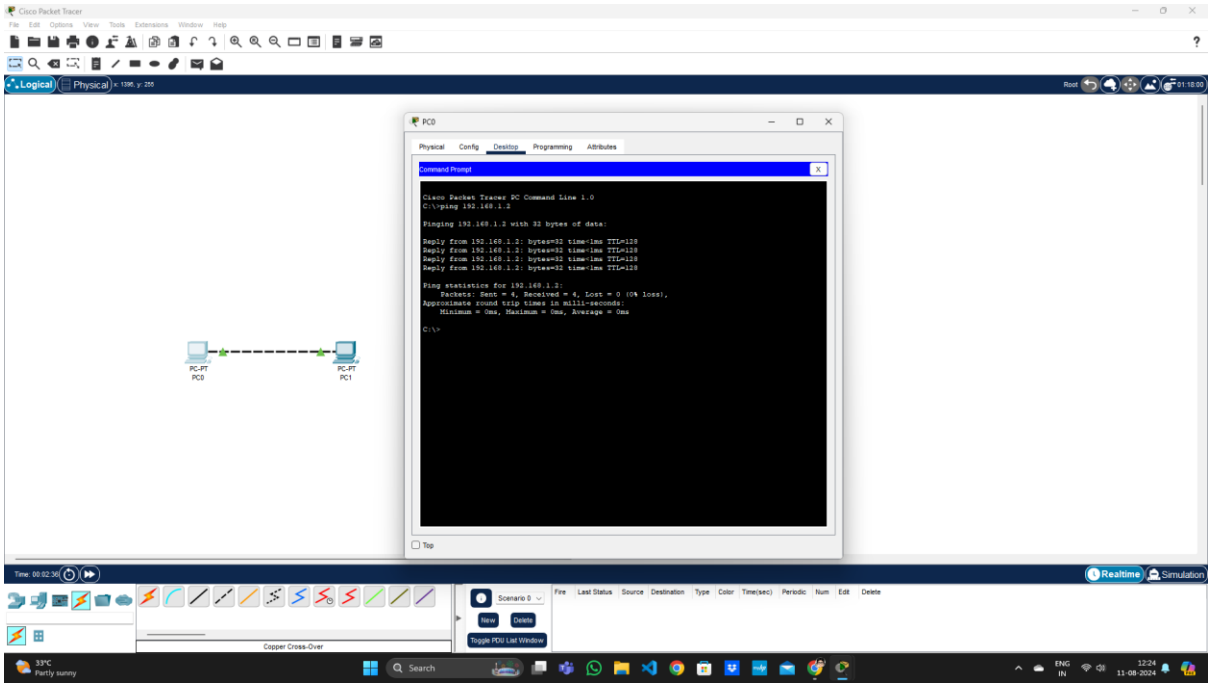
Cisco Packet Tracer
Logical
Physical
PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.2
Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
Top
PC-PT
PC0
PC-PT
PC1
Realtime
Simulation
Copper Cross-Over
Scenario 0
New
Delete
Toggle PDU List Window
Search