

# Report on Different Types of Network Cables

## Overview of Lab Objectives

The objective of this lab was to explore the various types of network cables used in computer networking, understand their specific applications, and document the standard color codes for copper cables. The lab aimed to provide hands-on experience with setting up a network that utilized different types of cables, enabling a practical understanding of their functionality.

## Steps Taken To Set Up the Network

### 1. Gathered Equipment:

The necessary equipment was gathered, including switches, routers, computers, and a variety of cables (copper straight-through, copper crossover, and fiber optic cables).

### 2. Cable Connections:

- Straight-through cables were used to connect different network devices, such as connecting a computer to a switch and a switch to a router.
- Crossover cables were used to connect similar devices directly without an intermediate switch.

### 3. Configuration of Devices:

- Assigned IP addresses to each device in the network within the same subnet.
- Configured routers and switches for basic networking operations.

### 4. Ping Testing:

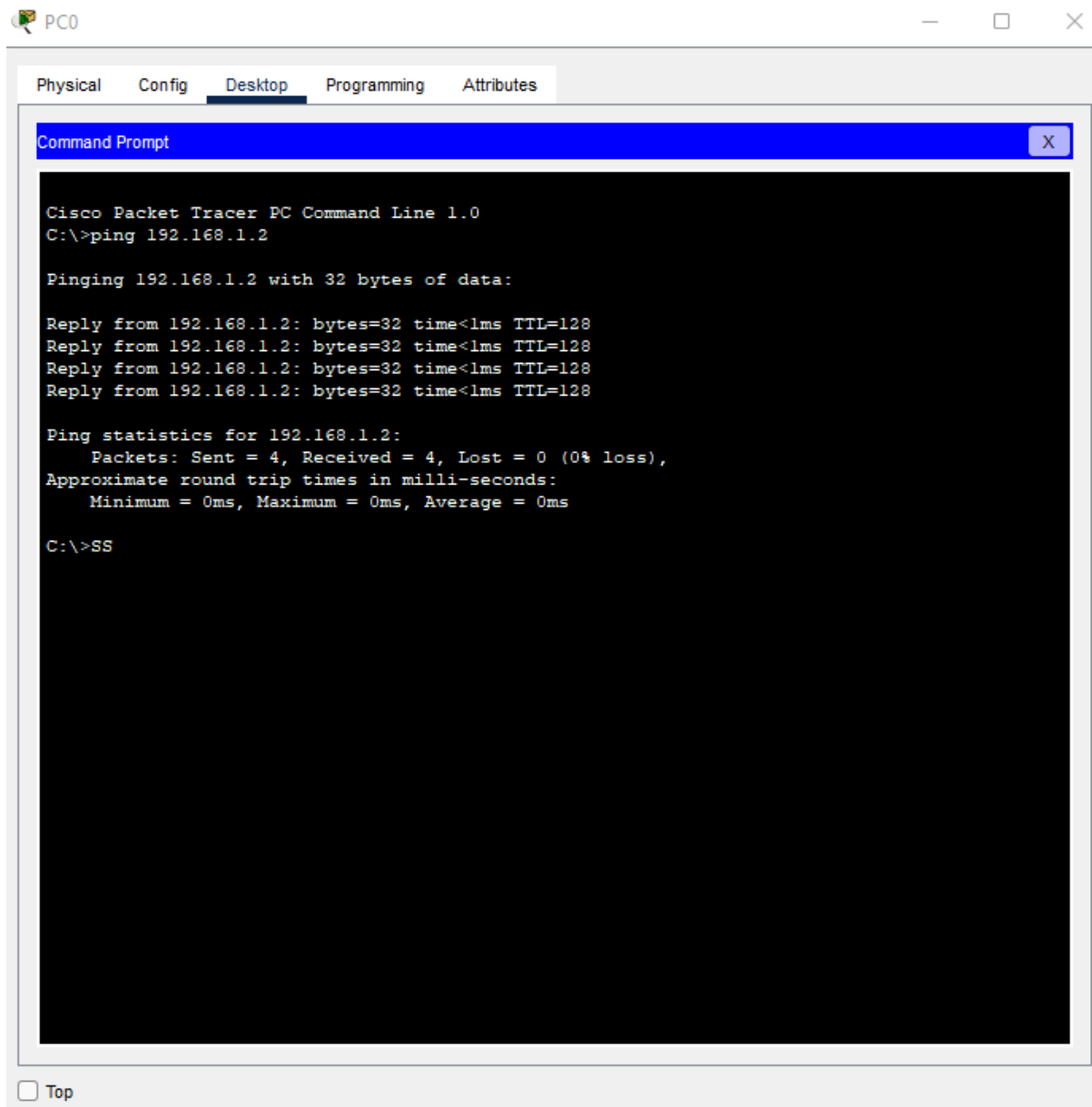
- Conducted ping tests to verify connectivity between devices on the network. Below are screenshots of the configurations and successful ping results:

### Configuration Example:

IPv4 Address	192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0

IPv4 Address	192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0

Results:



Detailed Information on Different Types of Cables

1. Copper Straight-Through Cable

Purpose:

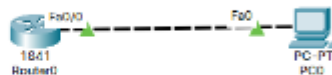
Copper straight-through cables are used to connect different types of devices in a network, such as a computer to a switch or a switch to a router. The wiring is configured to ensure that the transmission and reception wires are properly aligned for communication between unlike devices.

Color Codes:

The T568B standard is commonly used for straight-through cables.

- \*\*Pin 1\*\* : White with Orange Stripe
- \*\*Pin 2\*\* : Orange
- \*\*Pin 3\*\* : White with Green Stripe
- \*\*Pin 4\*\* : Blue
- \*\*Pin 5\*\* : White with Blue Stripe
- \*\*Pin 6\*\* : Green
- \*\*Pin 7\*\* : White with Brown Stripe
- \*\*Pin 8\*\* : Brown

Image:



## 2. Copper Crossover Cable

### Purpose:

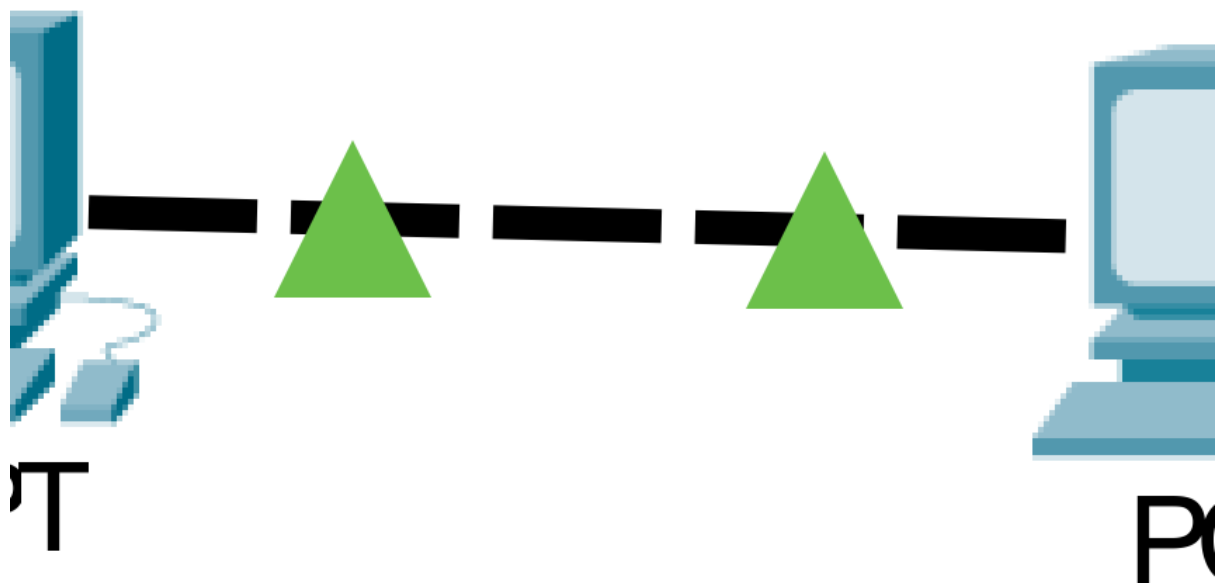
Copper crossover cables are utilized to connect similar devices directly, such as connecting one computer to another, or connecting two switches. The wiring configuration enables data transmission by crossing transmission and reception wires.

### \*\*Color Codes\*\*:

The T568A standard is often used for crossover cables, but both T568A and T568B wiring schemes may be combined.

- \*\*Pin 1\*\* : White with Green Stripe (Connects to Pin 3 on the other end)
- \*\*Pin 2\*\* : Green (Connects to Pin 6 on the other end)
- \*\*Pin 3\*\* : White with Orange Stripe (Connects to Pin 1 on the other end)
- \*\*Pin 4\*\* : Blue
- \*\*Pin 5\*\* : White with Blue Stripe
- \*\*Pin 6\*\* : Orange (Connects to Pin 2 on the other end)
- \*\*Pin 7\*\* : White with Brown Stripe
- \*\*Pin 8\*\* : Brown

### Image:



### ### 3. Fiber Optic Cables

#### **\*\*Purpose\*\*:**

Fiber optic cables are used for high-speed, long-distance data transmission. They transmit data using light signals and are immune to electromagnetic interference. These cables are ideal for backbone installations and interconnecting data centers.

#### **\*\*Types\*\*:**

- **\*\*Single-mode Fiber\*\***: Used for long-distance communication (greater than 10 km).
- **\*\*Multi-mode Fiber\*\***: Used for shorter distances (up to 2 km) within a building.

#### **\*\*Image\*\*:**



#### Summary of What I Learned from the Lab

Through this lab, I gained a deeper understanding of the different types of network cables and their applications. The significance of using the appropriate cable type for specific device connections became evident, particularly in preventing connectivity issues. The color coding standards for wiring copper cables were also clarified, emphasizing the importance of proper cable construction. Additionally, the hands-on experience enhanced my troubleshooting skills, as I successfully configured devices and confirmed network connectivity through ping tests.

This knowledge is crucial for anyone entering the field of networking, as it lays the foundation for efficient and reliable network setups. Understanding the various cables and their functions is essential for future endeavors in network configuration and maintenance.