Tribhuvan University
Faculty of Humanities and Social Sciences

Lab report on:
Computer Networking Lab 2: Implementation of cross-over ethernet cable

Submitted to:
Mr. Anup Pandey ,
Department of Computer Application,
Himalaya College of Engineering,
Chyasal,Lalitpur

Submitted by:
Sujal Gurung
Roll no: 34
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1 Objectives

- understand difference between straight-through & cross-over network cable
- practically implement the cross-over cable using clamping tool.

2 Introduction

Ethernet cables belong to the Physical layer of the OSI model and are used to connect devices together in a network. They can be of 2 types:

- Straight-through
- Cross-over

An un-clamped patch cable consists of 8 smaller color-coded wires. The patch cable can be converted into either of the 2 types based on the wiring standard used i.e. the sequence of organizing and connecting the wires to the RJ45 connectors.

2.1 Straight-through

It is used to connect a computer to a network hub such as a router. Both ends of the wire must follow the same wiring standard, that can be either T568A or TF68B.

2.2 Cross-over

It is used to connect devices of the same type i.e. computer to coputer, switch to switch etc. Here, one end must use the T568A standard and the other must be T568B.

Table 1: Cabling Standard/ organization for cross-over ethernet cable

RJ45 pin no.(end 1)	Wire color	RJ45 pin no.(end 2)	Wire color
1	White orange	1	White green
2	Orange	2	Green
3	White green	3	White orange
4	Blue	4	White brown
5	White blue	5	Brown
6	Green	6	Orange
7	White brown	7	Blue
8	Brown	8	White blue

3 Lab Work

3.1 Tools used

- RJ-45 Connector - Clamping tool - Twisted pair patch cable

3.2 Procedure

- Remove a small length of the cable's plastic jacket/covering using the blade on the clamping tool. Length should be about the length of the RJ-45 connector.
- If needed, trim the inner copper wires so that all are of same length.
- Untwitst and organize the copper wires, following the appropriate cabling standard.
- Fit the wires into the connector and clamp it shut.
- Repeat for the other end as well

4 Conclusion

Thus, we clearly understood the different usecases for straight-through & cross-over network cable. We also learned how to arrange patch cable into cross-over cabling standard and clamp it by doing so practically.