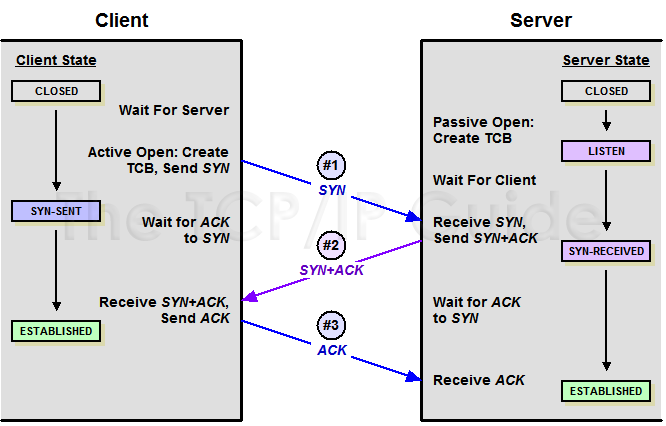
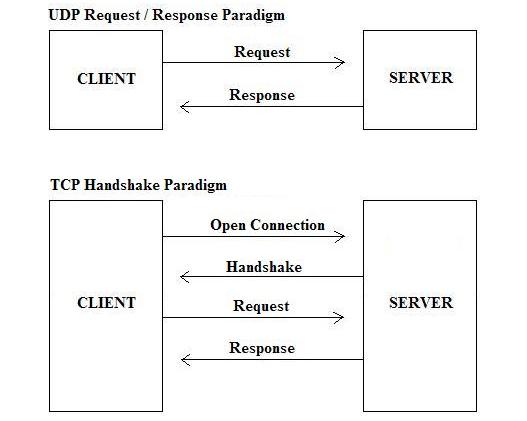
**Lab2 – Guideline**

**users.utcluj.ro/~bogdaniancu/cnd.html**

**Transport layer protocols**



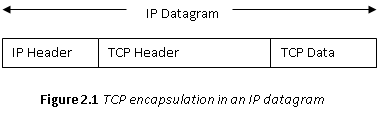
IP Header

TCP Header

TCP Data

IP Datagram

**Figure 2.1** *TCP encapsulation in an IP datagram*

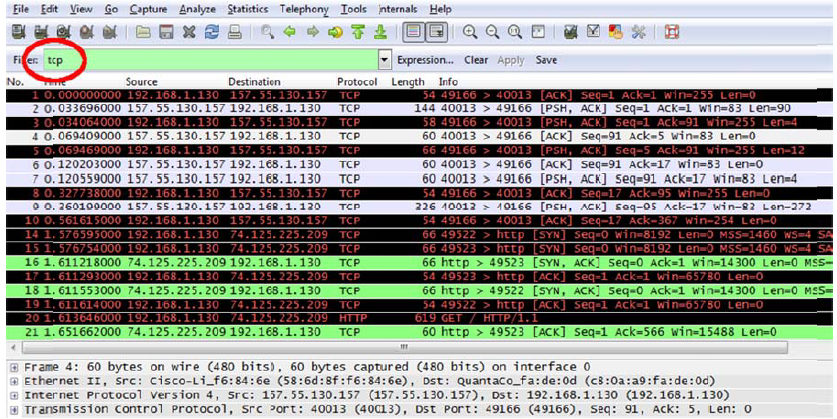


-TCP vs UDP

* TCP - Transmission Control Protocol
  + Connection-oriented
  + 3-way handshake
  + Closing: FIN signal
  + support for the HTTP and FTP protocols
* UDP - User Datagram Protocol
  + Connectionless
  + support for the DNS and TFTP protocols

-Well-known ports

Using Wireshark to Observe the TCP 3-Way Handshake



**TELNET on WINDOWS:**

1. Instal Telnet service on Windows (server and client)

Control Panel – Programs – Add or remove Windows Features (Turn Windows features on or off)

Select: Telnet Server and Telnet Client

2. Start Telnet services (by default are off):

Run: services.msc

Start Telnet Server and Telnet Client Services

**DOWNLOAD Putty from:**

<http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe>

* Start/Capture local telnet sessions with **Wireshark**: communication, ports, codes
* Start **putty** and select
  + Connection Type: Telnet
  + Host Name (IP address): 10.134.0.50
* User: test
* Password: test
* View directory listing: **dir**
* Close connection: **close**

Star Wars asciimation using telnet on port 23: **towel.blinkenlights.nl**

List of telnet/ssh servers: <https://nethackwiki.com/wiki/Public_server>

**nethack4.org**

user: nethack43

password: nethack43

**SSH:**

* Start/Capture local telnet sessions with **Wireshark**: communication, ports, codes
* Start **putty** and select
  + Connection Type: SSH
  + Host Name (IP address): 10.134.0.50
* User: test
* Password: test
* View directory listing: **dir**
* Close connection: **close**

List of telnet/ssh servers: <https://nethackwiki.com/wiki/Public_server>

**nethack4.org**

user: nethack43

password: nethack43



**FTP:**

1. Capture FTP sessions with **Wireshark**: communication, ports, codes (ex. [ftp.utcluj.ro](ftp://ftp.utcluj.ro))

* Start a **cmd** session
* Write command: **ftp** [**ftp.utcluj.ro**](ftp://ftp.utcluj.ro)
  + User: anonymous
  + Password:
* View directory listing: **dir**
* Close connection: **bye** or **quit**

***OPTIONAL***

**APACHE Server**

* See Apache configuration document: *Lab 3.4.2: Managing a Web Server*
* **netstat** command