

## Homework 2

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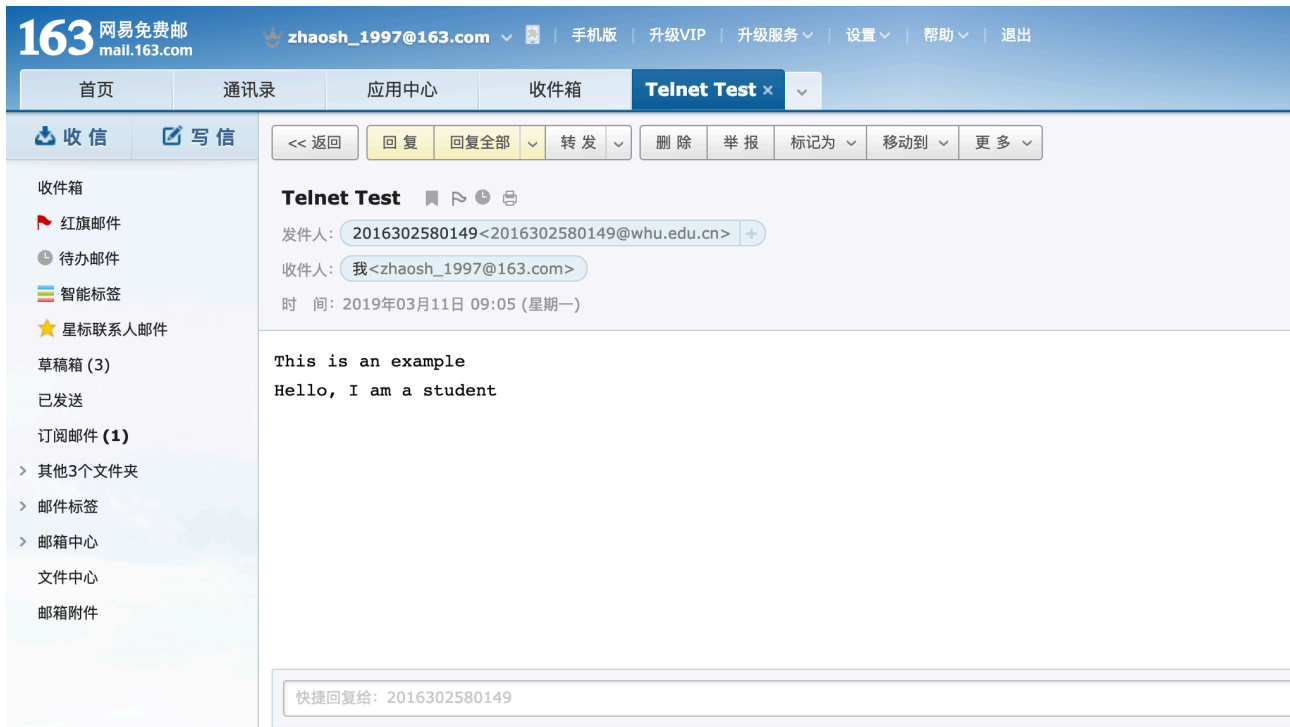
1.应用telnet发送邮件，这里使用whu.edu.cn 邮箱向163邮箱发送邮件

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2. zsh@localhost: ~ (zsh)

λ zsh [~] → telnet
telnet> telnet whu.edu.cn 25
Trying 202.114.64.84...
Connected to whu.edu.cn.
Escape character is '^]'.
220 whu.edu.cn Anti-spam GT for Coremail System (whu[20171226])
helo zhaoshihan
250 OK
auth login
334 dXNlcm5hbWU6
[REDACTED]
334 UGFzc3dvcmQ6
[REDACTED]
235 Authentication successful
mail from:<2016302580149@whu.edu.cn>
250 Mail OK
rcpt to:<zhaosh_1997@163.com>
250 Mail OK
data
354 End data with <CR><LF>.<CR><LF>
from:2016302580149@whu.edu.cn
to:zhaosh_1997@163.com
subject:Telnet Test

This is an example
Hello, I am a student
.
250 Mail OK queued as AgBjCgAHD__es4Vct4iqAA--.31461S2
Connection closed by foreign host.

λ zsh [~] →
```



## 2.第二章任意课后5题

P3. Assume you open a browser and enter <http://yourbusiness.com/about.html> in the address bar. What happens until the webpage is displayed? Provide details about the protocol(s) used and a high-level description of the messages exchanged.

Answer:

Application layer protocols: DNS and HTTP

Transport layer protocols: UDP for DNS; TCP for HTTP

P4. Consider the following string of ASCII characters that were captured by Wireshark when the browser sent an HTTP GET message (i.e., this is the actual content of an HTTP GET message). The characters <cr><lf> are carriage return and line-feed characters (that is, the italicized character string <cr> in the text below represents the single carriage-return character that was contained at that point in the HTTP header). Answer the following questions, indicating where in the HTTP GET message below you find the answer.

Answer:

- The document request was <http://gaia.cs.umass.edu/cs453/index.html>. The Host : field indicates the server's name and /cs453/index.html indicates the file name.
- The browser is running HTTP version 1.1, as indicated just before the first <cr><lf> pair.
- The browser is requesting a persistent connection, as indicated by the Connection: keep-alive.
- This is a trick question. This information is not contained in an HTTP message anywhere. So there is no way to tell this from looking at the exchange of HTTP messages alone. One would need information from the IP datagrams (that carried the TCP segment that carried the HTTP GET request) to answer this question.
- Mozilla/5.0. The browser type information is needed by the server to send different versions of the same object to different types of browsers.

P5. The text below shows the reply sent from the server in response to the HTTP GET message in the question above. Answer the following questions, indicating where in the message below you find the answer.

Answer:

- The status code of 200 and the phrase OK indicate that the server was able to locate the document successfully. The reply was provided on Tuesday, 07 Mar 2008 12:39:45 Greenwich Mean Time.
- The document index.html was last modified on Saturday 10 Dec 2005 18:27:46 GMT.
- There are 3874 bytes in the document being returned.
- The first five bytes of the returned document are : <!doc. The server agreed to a persistent connection, as indicated by the Connection: Keep-Alive field

P11. Generalize the results obtained for the first and the last scenario in the previous problem to a document size of  $L_d$  bytes,  $N$  images with size of  $L_i$  bytes (for  $0 \leq i \leq N$ ), a rate of  $R$  byte/s and an RTT of  $RTT_{avg}$

Answer:

- a) Yes, because Bob has more connections, he can get a larger share of the link bandwidth.
- b) Yes, Bob still needs to perform parallel downloads; otherwise he will get less bandwidth than the other four users.

P13. Describe a few scenarios in which mail access protocols are not needed.

Answer:

The MAIL FROM: in SMTP is a message from the SMTP client that identifies the sender of the mail message to the SMTP server. The From: on the mail message itself is NOT an SMTP message, but rather is just a line in the body of the mail message.