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PR03 Report

### Introduction:

All authentication is working as intended. I also fixed some problems that my PR02 had, such as only having one line of DATA, not being able to download more than one email, and some filling in the @447.edu for addresses.

### How to compile and run:

- The makefile for the server is just 'all' and I used ports 6050(TCP) and 6049(UDP).
- The makefiles for the sender and receiver are provided.

### Design Choices:

#### Response codes:

- USING (SMTP):
  - 220 - service ready.
  - 250 - HELO response && mail actions completed.
  - 354 - start DATA input
  - 503 - bad sequence of commands (only for HELO in this case.)
  - 500 - syntax error. This will likely never trigger in my case, as all of the commands are automated.
- USING (HTTP):
  - 200 - HTTP OK. This is only in the .txt response file.
  - 404 - Not Found. This is if there isn't a folder that corresponds with the username entered.
  - 400 - Bad Request. This is triggered if someone enters a poor email number.
- USING (AUTH)
  - 330 - New password/user
  - 334 - Prompts client to enter username or password
  - 235 - Successful Login
  - 535 - Credentials invalid
  - 530 - Authentication required.

One of the requirements for the project that I didn't realize until the end was that the @447.edu suffix was not suppose to be autofilled for the user. It was easy enough to fix but I deliberately kept it to autofill for the AUTH part of the interaction. This is because I felt that with email services you log in with your username not your full address.

## Sample Run:

(for formatting screenshots are at the end of the document, and in a folder called screenshots.)  
[newemail.png](#) is an example of trying to log into the server for the first time as a new user. This returned a new password and waited 5 seconds to reconnect.

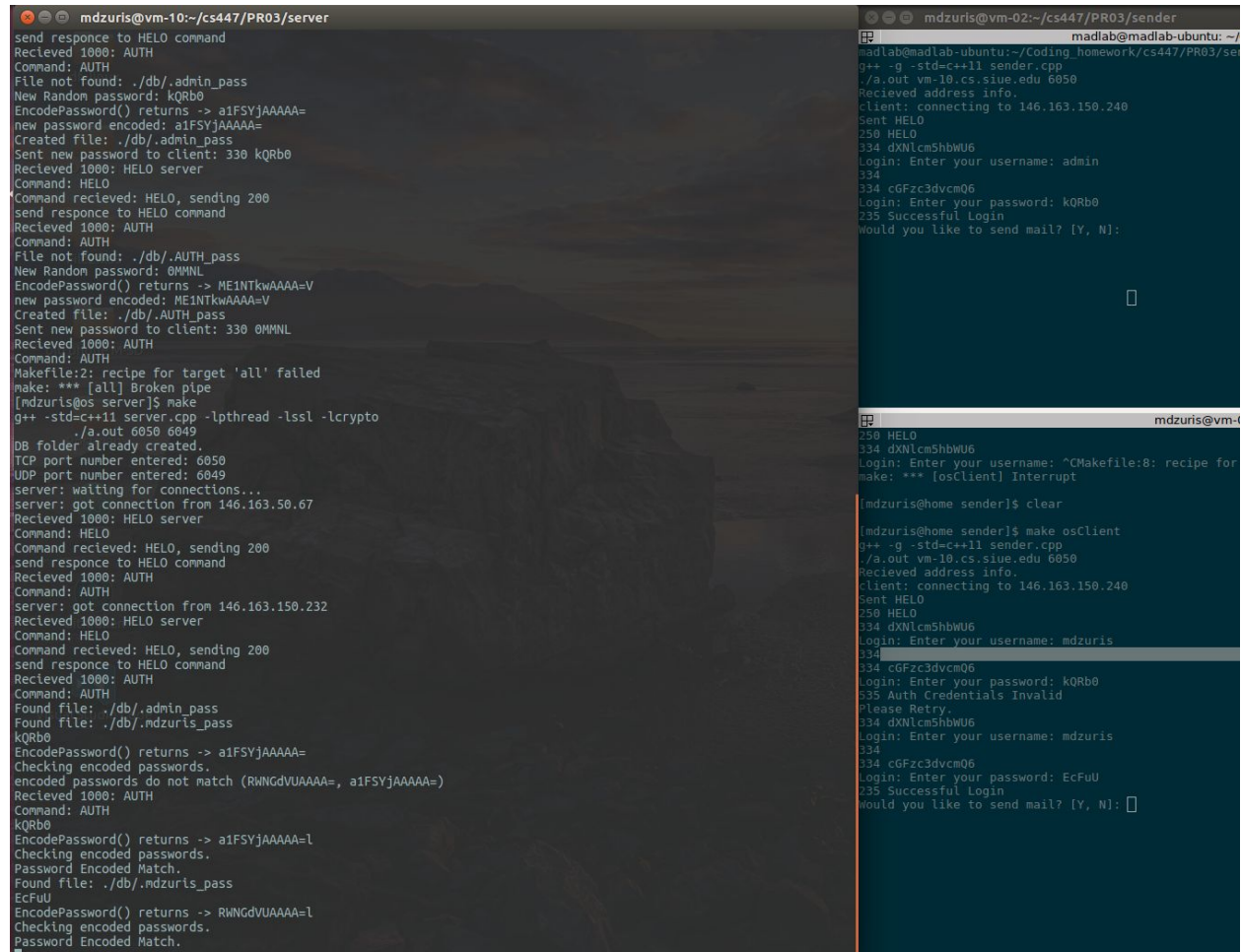
[1recv1sender.png](#) is an example of the sender->server and receiver->server. Server is on os server, sender is on my machine, and receiver is on the home server.

[twoSenders.png](#) is an example of two sender->server interactions running at the same time to show the multithreading is working.

## Summary and Issues Encountered

I ran into few issues this time around. I was able to start early and finish the authentication a few days ago. So I took the extra time to fix some of the problems that I had with the PR02 requirements.

## twoSenders.png



```
mdzuris@vm-10:~/cs447/PR03/server
send response to HELO command
Received 1000: AUTH
Command: AUTH
File not found: ./db/.admin_pass
New Random password: kQRb0
EncodePassword() returns -> a1FSYjAAAAA=
new password encoded: a1FSYjAAAAA=
Created file: ./db/.admin_pass
Sent new password to client: 330 kQRb0
Received 1000: HELO server
Command: HELO
Command received: HELO, sending 200
send response to HELO command
Received 1000: AUTH
Command: AUTH
File not found: ./db/.AUTH_pass
New Random password: 0MMNL
EncodePassword() returns -> ME1NTkwAAAA=V
new password encoded: ME1NTkwAAAA=V
Created file: ./db/.AUTH_pass
Sent new password to client: 330 0MMNL
Received 1000: AUTH
Command: AUTH
Makefile: recipe for target 'all' failed
make: *** [all] Broken pipe
[mdzuris@os server]$ make
g++ -std=c++11 server.cpp -lpthread -lssl -lcrypto
./a.out 6050 6049
DB Folder already created.
TCP port number entered: 6050
UDP port number entered: 6049
server: waiting for connections...
server: got connection from 146.163.150.67
Received 1000: HELO server
Command: HELO
Command received: HELO, sending 200
send response to HELO command
Received 1000: AUTH
Command: AUTH
server: got connection from 146.163.150.232
Received 1000: HELO server
Command: HELO
Command received: HELO, sending 200
send response to HELO command
Received 1000: AUTH
Command: AUTH
Found file: ./db/.admin_pass
Found file: ./db/.mdzuris_pass
kQRb0
EncodePassword() returns -> a1FSYjAAAAA=
Checking encoded passwords.
encoded passwords do not match (RWNGdVUAAAA=, a1FSYjAAAAA=)
Received 1000: AUTH
Command: AUTH
kQRb0
EncodePassword() returns -> a1FSYjAAAAA=l
Checking encoded passwords.
Password Encoded Match.
Found file: ./db/.mdzuris_pass
EcFuU
EncodePassword() returns -> RWNGdVUAAAA=l
Checking encoded passwords.
Password Encoded Match.

mdzuris@vm-02:~/cs447/PR03/sender
madlab@madlab-ubuntu:~/Coding homework/cs447/PR03/se
g++ -g -std=c++11 sender.cpp
./a.out vm-10.cs.siu.edu 6050
Received address info.
client: connecting to 146.163.150.240
Sent HELO
250 HELO
334 dXNlcmShbWU6
Login: Enter your username: admin
334
334 cGFzc3dvcmQ6
Login: Enter your password: kQRb0
235 Successful Login
Would you like to send mail? [Y, N]:

mdzuris@vm-1
250 HELO
334 dXNlcmShbWU6
Login: Enter your username: ^CMakefile:8: recipe for
make: *** [osClient] Interrupt

[mdzuris@home sender]$ clear
[mdzuris@home sender]$ make osClient
g++ -g -std=c++11 sender.cpp
./a.out vm-10.cs.siu.edu 6050
Received address info.
client: connecting to 146.163.150.240
Sent HELO
250 HELO
334 dXNlcmShbWU6
Login: Enter your username: mdzuris
334
334 cGFzc3dvcmQ6
Login: Enter your password: kQRb0
535 Auth Credentials Invalid
Please Retry.
334 dXNlcmShbWU6
Login: Enter your username: mdzuris
334
334 cGFzc3dvcmQ6
Login: Enter your password: EcFuU
235 Successful Login
Would you like to send mail? [Y, N]:
```

# 1recv1sender.png

```
mdzuris@vm-10:~/cs447/PR03/server
./a.out 6050 6049
DB folder already created.
TCP port number entered: 6050
UDP port number entered: 6049
server: waiting for connections...
server: got connection from 146.163.150.232
Received 1000: HELO server
Command: HELO
Command received: HELO, sending 200
send response to HELO command
Received 1000: AUTH
Command: AUTH
GOT to rcvfrom
server: got communication from 146.163.50.67
Incoming UDP message
Sent 200 OK
Received 100: AUTH
Found file: ./db/.admin_pass
EncodePassword() returns -> a1FSYjAAAAA=
Checking encoded passwords.
Password Encoded Match.
./db/<admin@447.edu>
DB folder already created. (./db/<admin@447.edu>)
unread 4
Emails Left2
Found file: ./db/.mdzuris_pass
EcFuU
EncodePassword() returns -> RWNGdVUAAAA=
Checking encoded passwords.
Password Encoded Match.
Received 1000: MAIL FROM:<mdzuris@447.edu>
Command: MAIL
FullEmail:
MAIL FROM:<mdzuris@447.edu>
sent response to MAIL FROM command
Received 1000: RCPT TO:<admin@447.edu>
Command: RCPT
FullEmail:
MAIL FROM:<mdzuris@447.edu>
RCPT TO:<admin@447.edu>
sent response to RCPT TO command
Received 1000: DATA more smaple text
.
Command: DATA
FullEmail:
MAIL FROM:<mdzuris@447.edu>
RCPT TO:<admin@447.edu>
DATA more smaple text
.
./db/<admin@447.edu>
DB folder already created. (./db/<admin@447.edu>)
New file path: ./db/<admin@447.edu>/003.email
sent response to RCPT TO command
Received 100: GET /db/admin
username admin
searchin db for directory: ./db/<admin@447.edu>
found directory: ./db/<admin@447.edu>
Frag2: / HTTP/1.1
GET /db/admin/ HTTP/1.1
Host: <447.edu>
Count: 2

madlab@madlab-ubuntu: ~/Coding_ho
madlab@madlab-ubuntu:~/Coding_ho
g++ -std=c++11 reciever.cpp
./a.out vm-10.cs.siu.edu 6049
./emails folder already created.
Received address info.
Received: 200 OK
334 dXNlcmShbWU6
Login: Enter your username: admin
334
334 cGFzc3dvcmQ6
Login: Enter your password: kQRb0
235 Successful Login
You have 2 unread emails.
Would you like to recieve mail? [Y, N]: Y
Server Found the username.
Enter desired email downloads: 2
sendto: Success
New file path: ./emails/002.txt
Would you like to recieve mail? [Y, N]:

[mdzuris@home sender]$ make os
make: *** No rule to make target 'os'. Stop
[mdzuris@home sender]$ make osClient
g++ -g -std=c++11 sender.cpp
./a.out vm-10.cs.siu.edu 6050
Received address info.
Client: connecting to 146.163.150.240
Sent HELO
250 HELO
334 dXNlcmShbWU6
Login: Enter your username: mdzuris
334
334 cGFzc3dvcmQ6
Login: Enter your password: EcFuU
235 Successful Login
Would you like to send mail? [Y, N]: Y
250 MAIL
Enter reciever address: admin@447.edu
Enter the message:
more smaple text
.
100
354 DATA
Would you like to send mail? [Y, N]:
```

newemail.png

```
root@kali:~# mdnsresponder-10c:/cs447/PROJ/server
[ndzuris@os db]$ ls
lsout db Makefile server.cpp
[ndzuris@os server]$ cd db/
[ndzuris@os db]$ ls
adminn447.edu> <nadlab447.edu>
[ndzuris@os db]$
bash: !a: command not found...
[ndzuris@os db]$ rm ..
..../.admin_pass ..nadl
[ndzuris@os db]$ rm ..
..../.admin_pass ..nadl
[ndzuris@os db]$ rm ..admin_pass ..nadl
[ndzuris@os db]$ rm ..nadlab_pass
[nadlab_pass ndzuris_pass]
[ndzuris@os db]$ rm ..n
[nadlab_pass ndzuris_pass]
[ndzuris@os db]$ rm ..ndzuris_pass
[ndzuris@os db]$ cd ..
[ndzuris@os server]$ make
g++ -std=c++11 server.cpp -pthread -lssl -lcrypto
./a.out 6950 6949
db folder already created.
TCP port number entered: 6950
UDP port number entered: 6949
server: waiting for connections...
server: got connection from 146.163.50.67
Received 1080: HELLO server
Command: HELLO
Command received: HELLO, sending 200
send response to HELLO command
Received 1080: AUTH
Command: AUTH
server: got connection from 146.163.150.232
Received 1080: HELLO server
Command: HELLO
Command received: HELLO, sending 200
send response to HELLO command
Received 1080: AUTH
Command: AUTH
File not found: ./db/.mdzuris_pass
New Random password: EcFuU
EncodePassword() returns => RWNGdYVAAA==
new password encoded: RWNGdYVAAA==
Created file: ./db/.mdzuris_pass
Sent new password to client: 330 EcFuU
Received 1080: HELLO server
Command: HELLO
Command received: HELLO, sending 200
send response to HELLO command
Received 1080: AUTH
Command: AUTH
```

```
madiab@madlab-ubuntu: ~/Coding_homework/cs447/PR03/sender
madiab@madlab-ubuntu: ~/Coding_homework/cs447
madiab@madlab-ubuntu:~/Coding_homework/cs447/PR03/senders make
g++ -g -std=c++11 sender.cpp
./a.out madlab-ubuntu 6950
Received address info:
client: connect: Connection refused
Client did not connect
Makefile(2): recipe for target 'local' failed
make: *** [local] Error 1
madiab@madlab-ubuntu:~/Coding_homework/cs447/PR03/senders make osClient
g++ -g -std=c++11 sender.cpp
./a.out vm-10.cs.siu.edu 6950
Received address info:
client: connecting to 146.163.150.240
Sent HELLO
250 HELLO
334 dXNlcmShbwU6
Login: Enter your username: mdzuris
330
338 EcFuU
Your new password: EcFuU
Wait for reconnect...
1...
2...
3...
4...
5...
New Connection.
-----
Sent HELLO
250 HELLO
334 dXNlcmShbwU6
Login: Enter your username: █

mdzuris@vm-02:~/cs447/PR03/sender
[mdzuris@home sende$] make
g++ -g -std=c++11 sender.cpp
./a.out madlab-ubuntu 6950
getaddrinfo: No address associated with hostname
makefile(2): recipe for target 'local' failed
make: *** [local] Error 1
[mdzuris@home sende$] make osClient
g++ -g -std=c++11 sender.cpp
./a.out vm-10.cs.siu.edu 6950
Received address info:
client: connecting to 146.163.150.240
Sent HELLO
250 HELLO
334 dXNlcmShbwU6
Login: Enter your username: █
```