

CS3093D Networks Laboratory - Assignment 6

Anandu B Ajith - B180288CS

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Instructions

- Usernames are loaded from “logincred.txt”
- Code can be compiled using the following instructions
gcc -lpthread FTAPClient/FTAPClient.c -o FTAPClient/FTAPClient
gcc -lpthread FTAPServer/FTAPServer.c -o FTAPServer/FTAPServer
- FTAPServer listens on port 4035 and FTAPClient can connect to it
- “START” is used to initiate connection to server
- “USERN username” provides the username for the connection
- “PASSWD password” provides the password for the connection
- “GetFile filename” can be used to retrieve file from the server, remaining time to download is displayed
- “StoreFile filename” is used to upload file to the server, remaining time to upload is displayed.
- “ListDir” is used to list the files available in server
- “CreateFile filename” can be used to create an empty file in the server
- The status codes for the commands are given below

Status codes

Status Code	Reason
200	OK Connection is set up
300	Correct Username; Need password
301	Incorrect Username
302	Missing username
305	User Authenticated with password
310	Incorrect password
333	Authentication required
332	Username already provided
493	GoodBye
505	Command not supported
600	Ready for File
601	FileInfo
602	FileData
603	FileEnd
604	File create success
610	Invalid file
611	File already exists
700	ListDir response
710	ListDir error

Screenshots

Figure 1: Testing USERN, PASSWD

```
1 2 3 4 5 9 2022-03-12 23:16:04 /: 76% muted 18% 25% \ BSNL WIFI 0 KB/s 0 KB/s 0 100%
cd FTAPServer && ./FTAPServer
anandu@inspiron [23:14:02] [~/Desktop/networkslab/assignment_06] [main]
→ % cd FTAPServer && ./FTAPServer
Waiting for connections
Received client
User 'cs3093d' Authenticated
User 'cs3093d' Disconnected
Received client
User 'cs3093d' Authenticated
File 'a.txt' Created successfully
User 'cs3093d' Disconnected

→ % cd FTAPClient && ./FTAPClient
USERN
Connect to server with 'START'
START
status_code = 200
OK Connection is setup
USERN wrongusername
status_code = 301
Incorrect Username
USERN cs3093d
status_code = 300
Correct Username; Need password
PASSWD wrong
status_code = 310
Incorrect password
PASSWD networkl@b
status_code = 305
User Authenticated with password
Welcome, cs3093d!
QUIT
status_code = 495
GoodBye [1m-16.9s]

anandu@inspiron [23:14:45] [~/Desktop/networkslab/assignment_06/FTAPClient] [main]
→ % ./FTAPClient
START
status_code = 200
OK Connection is setup
PASSWD beforeusername
status_code = 302
Missing username; provide username with USERN
USERN cs3093d
status_code = 300
Correct Username; Need password
USERN cs3093d
status_code = 332
Username already provided
ListDir
status_code = 333
Authentication required
PASSWD networkl@b
status_code = 305
User Authenticated with password
Welcome, cs3093d!
CreateFile a.txt
status_code = 604
File 'a.txt' Created successfully
QUIT
status_code = 495
GoodBye [1m2.0s]
12/03 23:16:01
```

Figure 2: Testing CreateFile

```
1 2 3 4 5 9 2022-03-12 23:19:59 /: 76% muted 18% 13% \ BSNL WIFI 0 KB/s 0 KB/s 0 100%
cd FTAPServer && ./FTAPServer
anandu@inspiron [23:18:37] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPServer && ./FTAPServer
Waiting for connections
Received client
User 'admin' Authenticated
Sending directory Listing
File 'my-new-file.txt' Created successfully
File 'my-new-file.txt' already exists
File 'another.txt' Created successfully
Sending directory Listing
User 'admin' Disconnected

anandu@inspiron [23:18:54] [~/Desktop/networkslab/assignment_06/FTAPClient] [main *]
→ % ./FTAPClient
START
status_code = 200
OK Connection is setup
USERN admin
status_code = 300
Correct Username; Need password
PASSWD @ministr@tor
status_code = 305
User Authenticated with password
Welcome, admin!
ListDir
status_code = 700
example.txt
FTAPServer.c
file.bin
a.txt
FTAPServer
.gitignore
sintel.mkv
CreateFile my-new-file.txt
status_code = 604
File 'my-new-file.txt' Created successfully
CreateFile my-new-file.txt
status_code = 611
File 'my-new-file.txt' already exists
CreateFile another.txt
status_code = 604
File 'another.txt' Created successfully
ListDir
status_code = 700
my-new-file.txt
example.txt
FTAPServer.c
file.bin
another.txt
a.txt
FTAPServer
.gitignore
sintel.mkv
QUIT
status_code = 495
GoodBye [1m-5.2s]

anandu@inspiron [23:19:52] [~/Desktop/networkslab/assignment_06/FTAPClient] [main *]
→ %
```

Figure 3: Testing GetFile

```

1 2 3 4 5 9
2022-03-12 23:26:49 /: 70% muted 19% 2% % BSNL WIFI 0 KB/s 0 KB/s 0 100%

cd FTAPServer && ./FTAPServer
anandu@inspiron [23:25:20] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPServer && ./FTAPServer
Waiting for connections
Received client
User 'cs3093d' Authenticated
File file.bin', already exists
Uploading 'sintel.mkv' complete
File sintel.mkv', already exists
Sending directory Listing

cd FTAPClient && ./FTAPClient
anandu@inspiron [23:25:20] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPClient && ./FTAPClient
START
status_code = 200
OK Connection is setup
USERN cs3093d
status_code = 300
Correct Username; Need password
PASSWD networkL@b
status_code = 305
User Authenticated with password
Welcome, cs3093d!
StoreFile asdf.txt
Invalid filename
StoreFile file.bin
status_code = 611
File file.bin', already exists
StoreFile sintel.mkv
Transmission rate = 5830 kbps 0 s remaining
Upload sintel.mkv complete
StoreFile sintel.mkv
status_code = 611
File sintel.mkv', already exists
ListDir
status_code = 700
large.ogv
FTAPServer.c
file.bin
FTAPServer
.gitignore
sintel.mkv
GetFile large.ogv
Transmission rate = 6120 kbps 4 s remaining

1: ./FTAPClient*
12/03 23:26:50

```

Figure 4: Testing StoreFile

```

1 2 3 4
2022-03-13 00:10:19 /: 70% muted 15% 2% % BSNL WIFI 0 KB/s 0 KB/s 0 100%

cd FTAPServer && ./FTAPServer
anandu@inspiron [00:09:33] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPServer && ./FTAPServer
Waiting for connections
Received client
User 'cs3093d' Authenticated
Sending directory Listing

cd FTAPClient && ./FTAPClient
anandu@inspiron [00:09:33] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPClient && ./FTAPClient
START
status_code = 200
OK Connection is setup
USERN cs3093d
status_code = 300
Correct Username; Need password
PASSWD networkL@b
status_code = 305
User Authenticated with password
Welcome, cs3093d!
ListDir
status_code = 700
FTAPServer.c
FTAPServer
.gitignore
sintel.mkv
StoreFile large.ogv
Transmission rate = 6000 kbps 3 s remaining

1: ./FTAPClient*
13/03 00:10:18

```

Figure 5: Testing ListDir and StoreFile error

```

1 2 3 4
2022-03-13 00:10:54 /: 70% muted 15% 13% % BSNL WIFI 0 KB/s 0 KB/s 0 100%

cd FTAPServer && ./FTAPServer

anandu@inspiron [00:09:33] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPServer && ./FTAPServer
Waiting for connections
Received client
User 'cs3093d' Authenticated
Sending directory listing
Uploading 'large.ogv' complete
Uploading 'file.bin' complete
Sending directory listing
User 'cs3093d' Disconnected

cd FTAPClient && ./FTAPClient

anandu@inspiron [00:09:33] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPClient && ./FTAPClient
START
status_code = 200
OK Connection is setup
USERN cs3093d
status_code = 300
Correct Username; Need password
PASSWD networkl@b
status_code = 305
User Authenticated with password
Welcome, cs3093d!
ListDir
status_code = 700
FTAPServer.c
FTAPServer
.giftignore
sintel.mkv
StoreFile large.ogv
Transmission rate = 6310 kbps 0 s remaining
Upload large.ogv complete
StoreFile wrong.txt
Invalid filename
StoreFile file.bin
Transmission rate = 10 kbps 0 s remaining
Upload file.bin complete
ListDir
status_code = 700
large.ogv
FTAPServer.c
file.bin
FTAPServer
.giftignore
sintel.mkv
QUIT
status_code = 495
GoodBye [1m17.1s]

anandu@inspiron [00:10:50] [~/Desktop/networkslab/assignment_06/FTAPClient] [main *]
→ %
1: ./FTAPClient*
13/03 00:10:50

```

Figure 6: Testing GetFile error

```

1 2 3 4
2022-03-13 00:13:49 /: 70% muted 15% 25% % BSNL WIFI 0 KB/s 0 KB/s 0 100%

cd FTAPServer && ./FTAPServer

anandu@inspiron [00:09:33] [~/Desktop/networkslab/assignment_06] [main *]
→ % cd FTAPServer && ./FTAPServer
Waiting for connections
Received client
User 'cs3093d' Authenticated
Sending directory listing
Uploading 'large.ogv' complete
Uploading 'file.bin' complete
Sending directory listing
User 'cs3093d' Disconnected
Received client
User 'cs3093d' Authenticated
Sending directory listing
File 'wrong.txt' does not exist
Downloading 'sintel.mkv' complete
User 'cs3093d' Disconnected

anandu@inspiron [00:12:32] [~/Desktop/networkslab/assignment_06/FTAPClient] [main *]
→ % ./FTAPClient
START
status_code = 200
OK Connection is setup
USERN cs3093d
status_code = 300
Correct Username; Need password
PASSWD networkl@b
status_code = 305
User Authenticated with password
Welcome, cs3093d!
ListDir
status_code = 700
large.ogv
FTAPServer.c
file.bin
FTAPServer
.giftignore
sintel.mkv
GetFile wrong.txt
status_code = 610
File 'wrong.txt' does not exist
GetFile sintel.mkv
Transmission rate = 6460 kbps 0 s remaining
Download sintel.mkv complete
GetFile sintel.mkv
File already exists on client
QUIT
status_code = 495
GoodBye [1m7.9s]

anandu@inspiron [00:13:44] [~/Desktop/networkslab/assignment_06/FTAPClient] [main *]
→ %
1: zsh*
13/03 00:13:48

```