

# 임베디드운영체제 P2P File Transfer & Chatting System 결과

```
st2016146011@602-d: ~/server
login as: st2016146011
st2016146011@220.149.128.100's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.10.0-28-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

472 packages can be updated.
263 updates are security updates.

New release '18.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Dec 15 18:26:39 2019 from 1.242.226.153
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User2>
[

st2016146011@602-c: ~/client
216 updates are security updates.

New release '18.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Dec 15 18:26:55 2019 from 1.242.226.153
st2016146011@602-c:~$ cd client
st2016146011@602-c:~/client$ ./client
Client-socket() sockfd is OK.../nClient-connect() is OK...

=====
Hello! I'm P2P File Sharing Server...
Please, LOG-IN!
=====

ID : user1
PW : passwd1
LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User2>
[

st2016146011@602-a: ~
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Dec 15 18:27:11 2019 from 1.242.226.153
st2016146011@602-a:~$ cd client.c
-bash: cd: client.c: 디렉터리가 없습니다
st2016146011@602-a:~$ vi client.c
st2016146011@602-a:~$ ls
client  client.c  clientt  examples.desktop
st2016146011@602-a:~$ ./clientt
Client-socket() sockfd is OK.../nClient-connect() is OK...

=====
Hello! I'm P2P File Sharing Server...
Please, LOG-IN!
=====

ID : user2
PW : passwd2
LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User1>
[
```

서버(왼쪽), 클라이언트1(오른쪽위-101), 클라이언트2(오른쪽아래-102)

두 유저 로그인 완료

```
st2016146011@602-d: ~/server
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New release '18.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Dec 15 18:26:39 2019 from 1.242.226.153
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User2>
<User1> Hi I am User1
<User1> Nice
<User1> Happy
<User2> Hi I am User2
<User2> SoSo
<User2> Not Bad

st2016146011@602-c: ~/client
st2016146011@602-c:~$ cd client
st2016146011@602-c:~/client$ ./client
Client-socket() sockfd is OK.../nclient-connect() is OK...

=====
Hello! I'm P2P File Sharing Server...
Please, LOG-IN!
=====

ID : user1
PW : passwd1
LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User2>
Hi I am User1
>> Nice
>> Happy
<User2> Hi I am User2
<User2> SoSo
<User2> Not Bad

st2016146011@602-a: ~
st2016146011@602-a:~$ ls
client client.c clientt examples.desktop
st2016146011@602-a:~$ ./clientt
Client-socket() sockfd is OK.../nclient-connect() is OK...

=====
Hello! I'm P2P File Sharing Server...
Please, LOG-IN!
=====

ID : user2
PW : passwd2
LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User1>
<User1> Hi I am User1
<User1> Nice
<User1> Happy
Hi I am User2
>> SoSo
>> Not Bad
>>
```

서버(왼쪽), 클라이언트1(오른쪽위-101), 클라이언트2(오른쪽아래-102)

클라이언트1이 보낸 메시지가 클라이언트2에도 잘 뜨고, 클라이언트2가 보낸 메시지가 클라이언트1에도 잘 뜨며 서버 쪽에도 잘 뜨는 것을 확인

```
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New release '16.04.3 LTS' available.
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Last login: Sun Dec 15 18:26:39 2019 from 1.242.226.153
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User2>
<User1> Hi I am User1
<User1> Nice
<User1> Happy
<User2> Hi I am User2
<User2> SoSo
<User2> Not Bad
<User2> FILE

st2016146011@602-c: ~/client
Hello! I'm P2P File Sharing Server...
Please, LOG-IN!

=====
ID : user1
PW : passwd1
LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User2>
Hi I am User1
>> Nice
>> Happy
<User2> Hi I am User2
<User2> SoSo
<User2> Not Bad
<User2> FILE

User1 Client-socket() frecvfd is OK...
User1 Client-connect() is OK...

st2016146011@602-a: ~
PW : passwd2
LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User1>
<User1> Hi I am User1
<User1> Nice
<User1> Happy
Hi I am User2
>> SoSo
>> Not Bad
>> FILE
User2 Server-socket() fsendfd is OK...
User2 Server-bind() is OK...
User2 listen() is OK...

-----FILE MODE START-----
-----FILE LIST-----
(1) FILE1_1
(2) FILE2_1
(3) FILE3_1

Please select a FILE >>
```

서버(왼쪽), 클라이언트1(유저1 – 오른쪽 위), 클라이언트2(유저2 – 오른쪽 아래)

채팅 중 유저2가 FILE을 요청하여 두 클라이언트는 연결되고 유저1이 보낸 파일(FILE1\_1,FILE2\_1,FILE3\_1) 리스트를 출력하여 원하는 파일을 선택하도록 하는 실행화면

```
st2016146011@602-d: ~/server
login as: st2016146011
st2016146011@220.149.128.100's password:
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Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Dec 15 18:26:39 2019 from 1.242.226.153
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ****

===== Welcome to Chatting Room =====
<User2>
<User1> Hi I am User1
<User1> Nice
<User1> Happy
<User2> Hi I am User2
<User2> SoSo
<User2> Not Bad
<User2> FILE

st2016146011@602-c: ~/client
ID : user1
PW : passwd1
LOG-IN Success! Hi [user1] ****

===== Welcome to Chatting Room =====

<User2>
Hi I am User1
>> Nice
>> Happy
<User2> Hi I am User2
<User2> SoSo
<User2> Not Bad
<User2> FILE

User1 Client-socket() frecvfd is OK...
User1 Client-connect() is OK...

3rd file has been requested!
Send Success ! !

st2016146011@602-a: ~
Hi I am User2
>> SoSo
>> Not Bad
>> FILE
User2 Server-socket() fsendfd is OK...
User2 Server-bind() is OK...
User2 listen() is OK...

-----FILE MODE START-----
-----FILE LIST-----
(1) FILE1_1
(2) FILE2_1
(3) FILE3_1

Please select a FILE >> 3
-----What's in the file-----
<FILE Name> : FILE3_1 , <FILE Contents> : Num 3 File >> Now Time 12 : 25

-----Saving file-----
Num 3 File >> Now Time 12 : 25
. . .
Save Success ! !
-----File Mode End-----
>>
```

서버(왼쪽), 클라이언트1(유저1 – 오른쪽 위), 클라이언트2(유저2 – 오른쪽 아래)

유저2가 파일을 선택(3번째 파일)하면 유저1에는 3번째파일을 요청받았음을 알리는 문구가 출력되고 Send Success!!문구와 함께 유저2에는 파일이름과 내용을 출력, 같은 내용/이름으로 파일을 저장한다.

```
st2016146011@602-a:~$ ls
client  client.c  clientt  examples.desktop
```

유저2가 파일을 전송 받기 전

```
st2016146011@602-a:~$ ls
FILE3_1 client client.c clientt examples.desktop
```

유저2가 파일을 전송 받은 후

```
st2016146011@602-d: ~/server
login as: st2016146011
st2016146011@220.149.128.100's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.10.0-28-generic x86_64)

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New release '18.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Tue Dec 17 03:51:36 2019 from 125.180.48.61
st2016146011@602-d:~$ ls
Lab1 chatserver chatserver.c examples.desktop project server
st2016146011@602-d:~$ ./server
-bash: ./server: 디렉터리입니다
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ***

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====
<User2>
<User2> Hi Im user2
<User2> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE

st2016146011@602-c: ~/client
ID : user1
PW : passwd1
LOG-IN Success! Hi [user1] ***

===== Welcome to Chatting Room =====
<User2>
<User2> Hi Im user2
<User2> HaHa
Hi Im user1
>> HaHa HoHo
>> FILE
User1 Server-socket() fsendfd is OK...
User1 Server-bind() is OK...
User1 listen() is OK...

-----FILE MODE START-----
-----FILE LIST-----
(1) FILE1_2
(2) FILE2_2
(3) FILE3_2

Please select a FILE >>

st2016146011@602-a:~$ ./client
Client-socket() sockfd is OK.../nClient-connect() is OK...

Hello! I'm P2P File Sharing Server...
Please, LOG-IN!

=====
ID : user2
PW : passwd2
LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====
<User1>
Hi Im user2
>> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE
User2 Client-socket() frecvfd is OK...
User2 Client-connect() is OK...
```

같은 방법으로 유저1이 유저2에게 요청

서버(왼쪽), 클라이언트1(유저1 - 오른쪽 위), 클라이언트2(유저2 - 오른쪽 아래)

채팅 중 유저1이 FILE을 요청하여 두 클라이언트는 연결되고 유저2가 보낸 파일(FILE1\_2,FILE2\_2,FILE3\_2) 리스트를 출력하여 원하는 파일을 선택하도록 하는 실행화면

```
st2016146011@602-d: ~/server
login as: st2016146011
st2016146011@220.149.128.100's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.10.0-28-generic x86_64)

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Run 'do-release-upgrade' to upgrade to it.

Last login: Tue Dec 17 03:51:36 2019 from 125.180.48.61
st2016146011@602-d:~$ ls
Lab1  chatserver  chatserver.c  examples.desktop  project  server
st2016146011@602-d:~$ ./server
-bash: ./server: 디렉터리입니다
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ***

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====
<User2>
<User2> Hi Im user2
<User2> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE

st2016146011@602-c: ~/client
<User2> HaHa
Hi Im user1
>> HaHa HoHo
>> FILE
User1 Server-socket() fsendfd is OK...
User1 Server-bind() is OK...
User1 listen() is OK...

-----FILE MODE START-----
-----FILE LIST-----
(1) FILE1_2
(2) FILE2_2
(3) FILE3_2

Please select a FILE >> 2
-----What's in the file-----
<FILE Name> : FILE2_2 , <FILE Contents> : Num 2 File >> Today 12/15

-----Saving FILE-----
Num 2 File >> Today 12/15
...
Save Success !!
-----File Mode End-----

st2016146011@602-a: ~
Hello! I'm P2P File Sharing Server...
Please, LOG-IN!

=====
ID : user2
PW : passwd2
LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====

<User1>
Hi Im user2
>> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE
User2 Client-socket() frecvfd is OK...
User2 Client-connect() is OK...

2nd file has been requested!
Send Success !!
```

서버(왼쪽), 클라이언트1(유저1 - 오른쪽 위), 클라이언트2(유저2 - 오른쪽 아래)

유저1이 파일을 선택(2번째 파일)하면 유저2에는 2번째파일을 요청받았음을 알리는 문구가 출력되고 Send Success!!문구와 함께 유저1에는 파일이름과 내용을 출력, 같은 내용/이름으로 파일을 저장한다.

```
st2016146011@602-c:~/client$ ls
client  client.c
```

유저1 파일전송 받기 전

```
st2016146011@602-c:~/client$ ls
FILE2_2  client  client.c
```

유저1 파일 전송 받은 후

```
st2016146011@602-d: ~/server
login as: st2016146011
st2016146011@220.149.128.100's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.10.0-28-generic x86_64)

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Last login: Tue Dec 17 03:51:36 2019 from 125.180.48.61
st2016146011@602-d:~$ ls
Lab1  chatserver  chatserver.c  examples.desktop  project  server
st2016146011@602-d:~$ ./server
-bash: ./server: 디렉터리입니다
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ***

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====
<User2>
<User2> Hi Im user2
<User2> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE
<User1> Thank you~
<User2> Okay Bye

st2016146011@602-c: ~/client
>> HaHa HoHo
>> FILE
User1 Server-socket() fsendfd is OK...
User1 Server-bind() is OK...
User1 listen() is OK...

-----FILE MODE START-----
-----FILE LIST-----
(1) FILE1_2
(2) FILE2_2
(3) FILE3_2

Please select a FILE >> 2
-----What's in the file-----
<FILE Name> : FILE2_2 , <FILE Contents> : Num 2 File >> Today 12/15

-----Saving FILE-----
Num 2 File >> Today 12/15
. . .
Save Success ! !
-----File Mode End-----
>> Thank you~
<User2> Okay Bye

st2016146011@602-a: ~
Please, LOG-IN!
=====

ID : user2
PW : passwd2
LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====
<User1>
Hi Im user2
>> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE
User2 Client-socket() frecvfd is OK...
User2 Client-connect() is OK...

2nd file has been requested!
Send Success ! !

<User1> Thank you~
Okay Bye
>>
```

서버(왼쪽), 클라이언트1(유저1 – 오른쪽 위), 클라이언트2(유저2 – 오른쪽 아래)

파일전송이 끝나면 다시 채팅모드로 들어가는 것을 확인할 수 있다.

서버 쪽에도 메시지가 도착확인

```
st2016146011@602-d: ~/server
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st2016146011@220.149.128.100's password:
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Last login: Tue Dec 17 03:51:36 2019 from 125.180.48.61
st2016146011@602-d:~$ ls
tab1  chatserver  chatserver.c  examples.desktop  project  server
st2016146011@602-d:~$ ./server
-bash: ./server: 디렉터리 입니디
st2016146011@602-d:~$ cd server
st2016146011@602-d:~/server$ ./server
Server-socket() sockfd is OK...
Server-bind() is OK...
listen() is OK...

accept() is OK...

LOG-IN Success! Hi [user1] ***

===== Welcome to Chatting Room =====
<User1>
accept() is OK...

LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====
<User2>
<User2> Hi Im user2
<User2> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE
<User1> Thank you~
<User2> Okay Bye
User1 Bye~
User2 Bye~

st2016146011@602-c: ~/client
>> FILE
User1 Server-socket() fsendfd is OK...
User1 Server-bind() is OK...
User1 listen() is OK...

-----FILE MODE START-----
-----FILE LIST-----
(1) FILE1_2
(2) FILE2_2
(3) FILE3_2

Please select a FILE >> 2
-----What's in the file-----
<FILE Name> : FILE2_2 , <FILE Contents> : Num 2 File >> Today 12/15

-----Saving FILE-----
Num 2 File >> Today 12/15
. . .
Save Success !!
-----File Mode End-----
>> Thank you~
<User2> Okay Bye
exit

st2016146011@602-a: ~
=====
ID : user2
PW : passwd2
LOG-IN Success! Hi [user2] ***

===== Welcome to Chatting Room =====

<User1>
Hi Im user2
>> HaHa
<User1> Hi Im user1
<User1> HaHa HoHo
<User1> FILE
User2 Client-socket() frecvfd is OK...
User2 Client-connect() is OK...

2nd file has been requested!
Send Success !!

<User1> Thank you~
Okay Bye
>> exit
st2016146011@602-a:~$
```

두 클라이언트 모두 exit라는 메시지를 통해 프로그램을 종료함을 알 수 있음