

# Test Document

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Test No	Description	Test	Expected result	Pass/Fail	Actual Result
1	Open message queue in Server	Start only Server and check 'ipcs'	<ul style="list-style-type: none"> <li>- Start the server</li> <li>- When check 'ipcs', create new message queue</li> </ul>	Pass (Figure 1)	<ul style="list-style-type: none"> <li>- Server started</li> <li>- Created message queue which id is 0</li> </ul>
2	Open message queue in Client	Start only Client and check 'ipcs'	<ul style="list-style-type: none"> <li>- Start the client</li> <li>- When check 'ipcs', create new message queue</li> </ul>	Pass (Figure 2)	<ul style="list-style-type: none"> <li>- Server started</li> <li>- Created message queue which id is 32768</li> </ul>
3	Use same message queue	Start a server and start client later Check ipcs	<ul style="list-style-type: none"> <li>- Both started</li> <li>- Does not make new message queue</li> </ul>	Pass (Figure 3)	<ul style="list-style-type: none"> <li>- Start server and client</li> <li>- Only one queue is existing which id is 0</li> </ul>
4	Server close message queue	Execute server and client, and close server using Ctrl+C	<ul style="list-style-type: none"> <li>- Server closed</li> <li>- Client closed and display error message.</li> </ul>	Pass (Figure 4)	<ul style="list-style-type: none"> <li>- Server Terminate program</li> <li>- All clients terminate with error message</li> <li>- Message queue is removed</li> </ul>
5	Client cannot close message queue	Execute server and client, and close client using Ctrl+C	<ul style="list-style-type: none"> <li>- Server is keep running</li> <li>- Client is closed.</li> </ul>	Pass (Figure 5)	<ul style="list-style-type: none"> <li>- Server is on</li> <li>- Client is closed.</li> <li>- Message queue is existing</li> <li>- Other clients are on.</li> </ul>
6	Priority when receive file request message in Server	Start 3 client with priority 1,3,5. And start a server	<ul style="list-style-type: none"> <li>- Server display the client receive status which order is 1,3,5</li> </ul>	Pass (Figure 6)	<ul style="list-style-type: none"> <li>- The order of executing client is 1,3,5</li> </ul>
7	Priority with file size	Start 3 client with priority 1,3,5 Start server	<ul style="list-style-type: none"> <li>- The transfer time is different.</li> <li>- priority 1 takes shortest</li> <li>- priority 5 takes longest</li> </ul>	Pass (Figure 6)	<ul style="list-style-type: none"> <li>- The priority 1, 3, 5 takes 1664ms, 1997ms, 4666 respectively</li> </ul>
8	Interrupt Server and close all child process.	Executing several client and a server. Ctrl+c in serverside	<ul style="list-style-type: none"> <li>- Display detect interrupt message</li> <li>- Stop running</li> <li>- The last order of killed process is parents</li> </ul>	Pass (Figure 7)	<ul style="list-style-type: none"> <li>- Destroy all child process and kill parent process</li> <li>- Stop client side processes</li> <li>- Display error message on client side</li> <li>- No 'Server' process left in system monitor</li> </ul>

Test No	Description	Test	Expected result	Pass/Fail	Actual Result
9	Although one client is interrupt, the other clients keep communicate without block.	Execute 3 client and a server Kill 1 client using 'Ctrl+C'	<ul style="list-style-type: none"> <li>- Stop the interrupt process</li> <li>- The other processes are keep receiving until end.</li> <li>- Nothing left in queue</li> </ul>	Pass (Figure 5)	<ul style="list-style-type: none"> <li>- Client 2 is terminated</li> <li>- Client 1,3 is executed until the end</li> <li>- Server display success transfer message of client 1 and 3.</li> </ul>
10	Fork processes and do transfer work	Open a server and a client Check process and open another and check again	<ul style="list-style-type: none"> <li>- Before start client, 1 process</li> <li>- 3 clients start, 3 process</li> <li>- Kill 1 client, 1 process</li> </ul>	Pass (Figure 8)	<ul style="list-style-type: none"> <li>- Create 3 client open and 1 client killed</li> <li>- There are 4 client left</li> </ul>
11	Invalid filename and get error message	Open a server Open a client with invalid filename	<ul style="list-style-type: none"> <li>- Server display error</li> <li>- Client display error</li> </ul>	Pass (Figure 9)	<ul style="list-style-type: none"> <li>- Client receive error message</li> <li>- Server display error message</li> </ul>
12	Compare sending file and receiving file	Send one text file and compare using txt diff site.	<ul style="list-style-type: none"> <li>- Original file and new file have same size.</li> <li>- Two files are perfectly matching</li> </ul>	Pass (Figure 10)	<ul style="list-style-type: none"> <li>- The two files are identical</li> </ul>
13	Compare sending image file and receiving	Send an image file and open both	<ul style="list-style-type: none"> <li>- The new image file is possible to open</li> <li>- The image is not broken</li> </ul>	Pass (Figure 11)	<ul style="list-style-type: none"> <li>- File size almost same (200.2K, 200.9K)</li> <li>- Image is not broken</li> <li>- Image size is same.</li> <li>-</li> </ul>

## Figure 1

```
moongom@moongom-asus: ~  
Every 0.5s: ipcs -q Thu Feb 4 03:58:12 2016  
  
----- Message Queues -----  
key      msqid      owner      perms      used-bytes      messages  
0x61065586 0          moongom    660        0               0  
  
moongom@moongom-asus: ~/Documents/a2  
moongom@moongom-asus:~/Documents/a2$ ./server
```

- Server starting open 1 queue

## Figure 2

```
moongom@moongom-asus: ~/Documents/a2  
moongom@moongom-asus:~/Documents/a2$ ./client novel.txt  
priority level(1:high - 5:low): 5  
  
Client 1  
  
moongom@moongom-asus: ~/Documents/a2  
moongom@moongom-asus:~/Documents/a2$  
  
Server - OFF  
  
moongom@moongom-asus: ~  
Every 0.5s: ipcs -q Thu Feb 4 04:03:54 2016  
  
----- Message Queues -----  
key      msqid      owner      perms      used-bytes      messages  
0x61065586 32768      moongom    660        12288          3  
  
moongom@moongom-asus: ~/Documents/a2  
moongom@moongom-asus:~/Documents/a2$ ./client novel.txt  
priority level(1:high - 5:low): 3  
  
Client 2  
  
moongom@moongom-asus: ~/Documents/a2  
moongom@moongom-asus:~/Documents/a2$ ./client novel.txt  
priority level(1:high - 5:low): 1  
  
Client 3  
  
ipcs
```

- Client open queue
- They share the queue - ipcs report messages : 3 (each client sent 1)

## Figure 3

```

moongom@moongom-asus: ~/Documents/a2
moongom@moongom-asus:~/Documents/a2$ ./server
The Client 3857 request file 'novel.txt' priority 3
[ ]

Server

moongom@moongom-asus: ~/Documents/a2
room. "Sir, I'm surprised your willing to use the transporter
so soon after the accident." He said to them as they started
down the hall.
"The transporter that exploded, is no longer functioning."
Malory said as if talking to a child.
"Has there been any progress in determining the reason for
the accident?" Bloom persisted.
"No, the explosion left very few clues." Tarva replied.
As they progressed through the corridors they could see an
increase in security, including check statio[ ]

Client

moongom@moongom-asus: ~
Every 0.5s: ipcs -q Thu Feb 4 03:59:28 2016

----- Message Queues -----
key      msqid      owner      perms      used-bytes  messages
0x61065586 0          moongom    660        16384       4

ipcs

```

- Server and client share same message queue
- Message is sent through the message queue.

## Figure 4

```

moongom@moongom-asus: ~/Documents/a2
firing was always one of Anndrea's weak points but she still
drew marksmanship honors. Now, with the weight of Utlin at her
side, the pressure of having to keep moving, the intense heat
from the fire fight and moving targets, Whitecloud missed.
As soon as she missed, Whitecloud called a warning, dropped
the Lieutenant and jumped to the side, re-aiming. Before she
could regain her target, however, the Borg fi

### SERVER CLOSE MESSAGE QUEUE. ###
: Identifier removed
moongom@moongom-asus:~/Documents/a2$ [ ]

Client1

moongom@moongom-asus: ~/Documents/a2
moongom@moongom-asus:~/Documents/a2$ ./server
The Client 6914 request file 'novel.txt' priority 1
The Client 6936 request file 'novel.txt' priority 5
The Client 6952 request file 'novel.txt' priority 3
^CChild 7003 killed by signal
Child 7004 killed by signal
Child 7005 killed by signal
parent finish
Terminated
moongom@moongom-asus:~/Documents/a2$ [ ]

Server

moongom@moongom-asus: ~
Every 0.5s: ipcs -q Thu Feb 4 04:07:39 2016

----- Message Queues -----
key      msqid      owner      perms      used-bytes  messages

moongom@moongom-asus: ~/Documents/a2
have a say in the matter. Besides she'll probably just sleep or
sight see the whole time anyway."
Kartang moaned he was going on his first D S flight with a
female as chaperone. As long as it wasn't Commander Tarva he
figured he could stand it.
Norton watched Kartang limp to the window and get a better
look at the deck. "How much longer do they exp

### SERVER CLOSE MESSAGE QUEUE. ###
: Identifier removed
moongom@moongom-asus:~/Documents/a2$ [ ]

Client2

moongom@moongom-asus: ~/Documents/a2
Larry
1160 Boyer Rd
Erie, Pa 16511

len101@psuvm.psu.edu
The following is a ST:TNG universe story, all rights reserved.
Permission

### SERVER CLOSE MESSAGE QUEUE. ###
: Identifier removed
moongom@moongom-asus:~/Documents/a2$ [ ]

Client3

System Monitor
Processes Resources File Systems
Load averages for the last 1, 5, 15 minutes: 0.59, 0.81, 0.57
Refresh

Process Name User % CPU ID Memory Priority
python3.6 0 1037 40.4MB Normal

```

- Server press 'Ctrl+C'
- Clients display error message : SERVER CLOSE
- Message queue is disappeared.

## Figure 5

```
moongom@moongom-asus: ~/Documents/a2
You who find us in this place,
Have you pity in your breast
Let us in our last embrace,
Under earth sun-hallowed rest.
Night's a claw upon my brain:
Oh, to see the Sun again.
"Sunshine"
Robert W. Service

Total 2980 packets      2052.00ms
moongom@moongom-asus:~/Documents/a2$

Client 1 - Finish

moongom@moongom-asus:~/Documents/a2
"Warped one engaged" said the middle aged human sitting in the
Helmsman's seat.
"Engineering, how are we doing?"
"I thought we were going to test this thing." said Dolittle
"Not just push her about."
"Warp five, engage" Anthony said.
"Warp five engaged" returned the Helmsman.
There was no obvious difference between sitting in space
dock and traveling at warp five except the view screen no longer
showed TE-4 below them but the standard 'rushing stars' opticle
illusion of warp.
The Vigilante spent the next week testing the engines for
extended periods of time below warp 9.6. Finally, Captain
Anthony decided it was time to test the Vigilante's acceleration
to warp 9.6 from sub warp.
Terminated
moongom@moongom-asus:~/Documents/a2$

Client2 - Terminated

moongom@moongom-asus:~/Documents/a2
Terminated
moongom@moongom-asus:~/Documents/a2$ make
gcc -Wall -pthread -c client_main.c
gcc -Wall -pthread -o client client_main.o share.o
moongom@moongom-asus:~/Documents/a2$ clear

moongom@moongom-asus:~/Documents/a2$ ./server
The Client 9613 request file 'novel.txt' priority 2
The Client 9548 request file 'novel.txt' priority 3
The Client 9587 request file 'novel.txt' priority 5
- FILE SENT SUCCESSFULLY to [9613] priority: 2
1842.00ms
- FILE SENT SUCCESSFULLY to [9548] priority: 3
2052.00ms
- FILE SENT SUCCESSFULLY to [9587] priority: 5
2052.00ms

Server

moongom@moongom-asus:~/Documents/a2
You who find us in this place,
Have you pity in your breast
Let us in our last embrace,
Under earth sun-hallowed rest.
Night's a claw upon my brain:
Oh, to see the Sun again.
"Sunshine"
Robert W. Service

Total 2253 packets      1842.00ms
moongom@moongom-asus:~/Documents/a2$

Client3 - Finished
```

- Client 2 is terminated
- Client 1 and 3 is keep receiving message
- Server display client 1 and 3 is keep going.

## Figure 6

```
moongom@moongom-asus: ~/Documents/a2
moongom@moongom-asus:~/Documents/a2$ ./server
The Client 5424 request file 'novel.txt' priority 1
The Client 5928 request file 'novel.txt' priority 3
The Client 5948 request file 'novel.txt' priority 5
- FILE SENT SUCCESSFULLY to [5424] priority: 1
1664.00ms
- FILE SENT SUCCESSFULLY to [5928] priority: 3
1997.00ms
- FILE SENT SUCCESSFULLY to [5948] priority: 5
4666.00ms
```

- Client start execute in priority order
- The time spend to successfully send is different depending on the priority
- Priority 1 (high priority) takes shorter and priority 5 (low priority) is longer.

## Figure 7

```
moongom@moongom-asus: ~/Documents/a2
moongom@moongom-asus:~/Documents/a2$ ./server
The Client 9613 request file 'novel.txt' priority 2
The Client 9548 request file 'novel.txt' priority 3
The Client 9587 request file 'novel.txt' priority 5
- FILE SENT SUCCESSFULLY to [9613] priority: 2
  1842.00ms

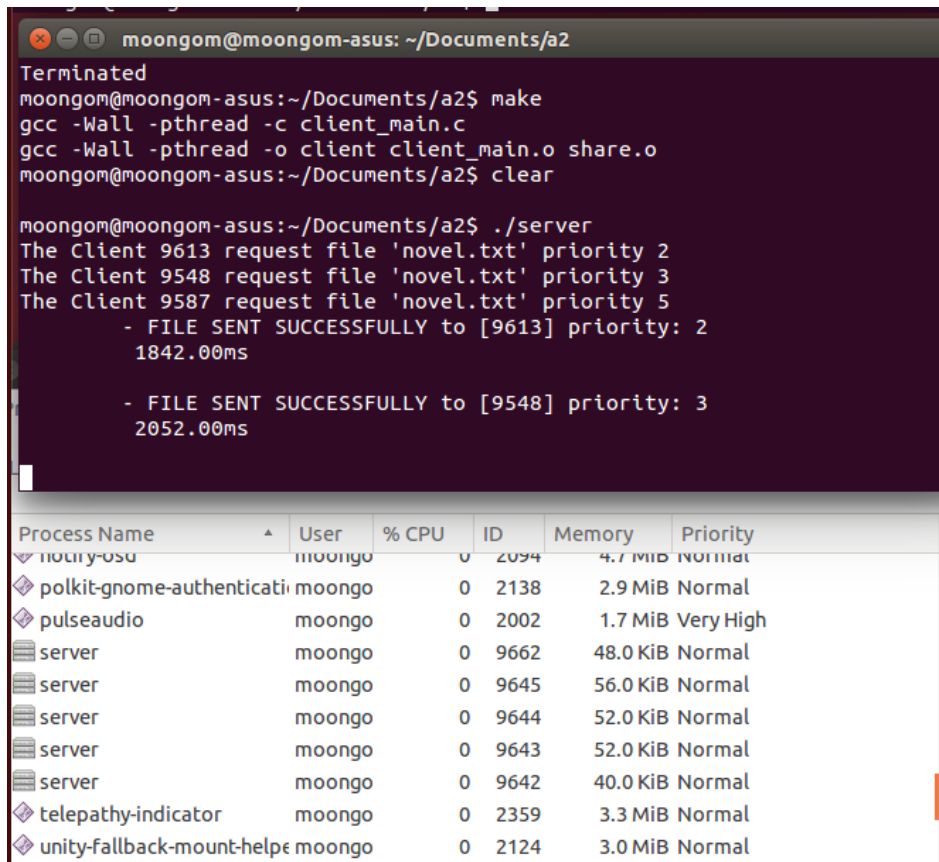
- FILE SENT SUCCESSFULLY to [9548] priority: 3
  2052.00ms

^CChild 9643 killed by signal
Child 9644 killed by signal
Child 9645 killed by signal
Child 9662 killed by signal
parent finish
Terminated
moongom@moongom-asus:~/Documents/a2$
```

Process Name	User	% CPU	ID	Memory	Priority
notity-usd	moongo	0	2094	4.7 MiB	Normal
polkit-gnome-authenticati	moongo	0	2138	2.9 MiB	Normal
pulseaudio	moongo	0	2002	1.7 MiB	Very High
telepathy-indicator	moongo	0	2359	3.3 MiB	Normal
unity-fallback-mount-help	moongo	0	2124	3.0 MiB	Normal
unity-files-daemon	moongo	0	7287	4.3 MiB	Normal
unity-music-daemon	moongo	0	7320	2.2 MiB	Normal
unity-panel-service	moongo	0	1927	10.5 MiB	Normal
unity-scope-home	moongo	0	7267	9.8 MiB	Normal
unity-scope-loader	moongo	0	7283	12.2 MiB	Normal
unity-settings-daemon	moongo	0	1909	6.4 MiB	Normal

- Killed all child processes and terminate parent process
- No process left in system monitor

## Figure 8



```
moongom@moongom-asus: ~/Documents/a2
Terminated
moongom@moongom-asus:~/Documents/a2$ make
gcc -Wall -pthread -c client_main.c
gcc -Wall -pthread -o client client_main.o share.o
moongom@moongom-asus:~/Documents/a2$ clear

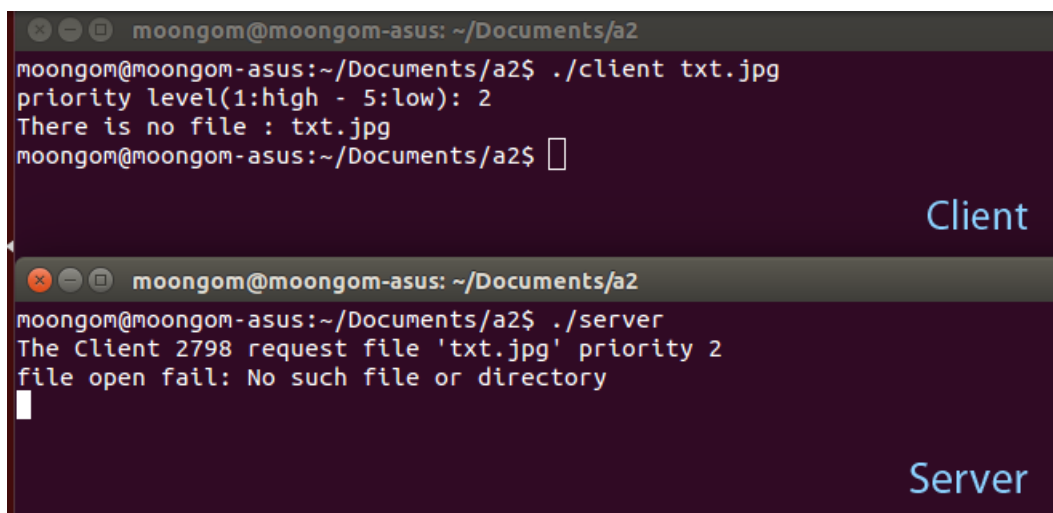
moongom@moongom-asus:~/Documents/a2$ ./server
The Client 9613 request file 'novel.txt' priority 2
The Client 9548 request file 'novel.txt' priority 3
The Client 9587 request file 'novel.txt' priority 5
- FILE SENT SUCCESSFULLY to [9613] priority: 2
  1842.00ms

- FILE SENT SUCCESSFULLY to [9548] priority: 3
  2052.00ms
```

Process Name	User	% CPU	ID	Memory	Priority
moongom	moongom	0	2094	4.7 MiB	Normal
polkit-gnome-authenticati	moongom	0	2138	2.9 MiB	Normal
pulseaudio	moongom	0	2002	1.7 MiB	Very High
server	moongom	0	9662	48.0 KiB	Normal
server	moongom	0	9645	56.0 KiB	Normal
server	moongom	0	9644	52.0 KiB	Normal
server	moongom	0	9643	52.0 KiB	Normal
server	moongom	0	9642	40.0 KiB	Normal
telepathy-indicator	moongom	0	2359	3.3 MiB	Normal
unity-fallback-mount-helpe	moongom	0	2124	3.0 MiB	Normal

- There is 5 processes: 1 parent and 4 child processes
- Client execute 3 times to read file, and once to kill process

## Figure 9



```
moongom@moongom-asus: ~/Documents/a2
moongom@moongom-asus:~/Documents/a2$ ./client txt.jpg
priority level(1:high - 5:low): 2
There is no file : txt.jpg
moongom@moongom-asus:~/Documents/a2$
```

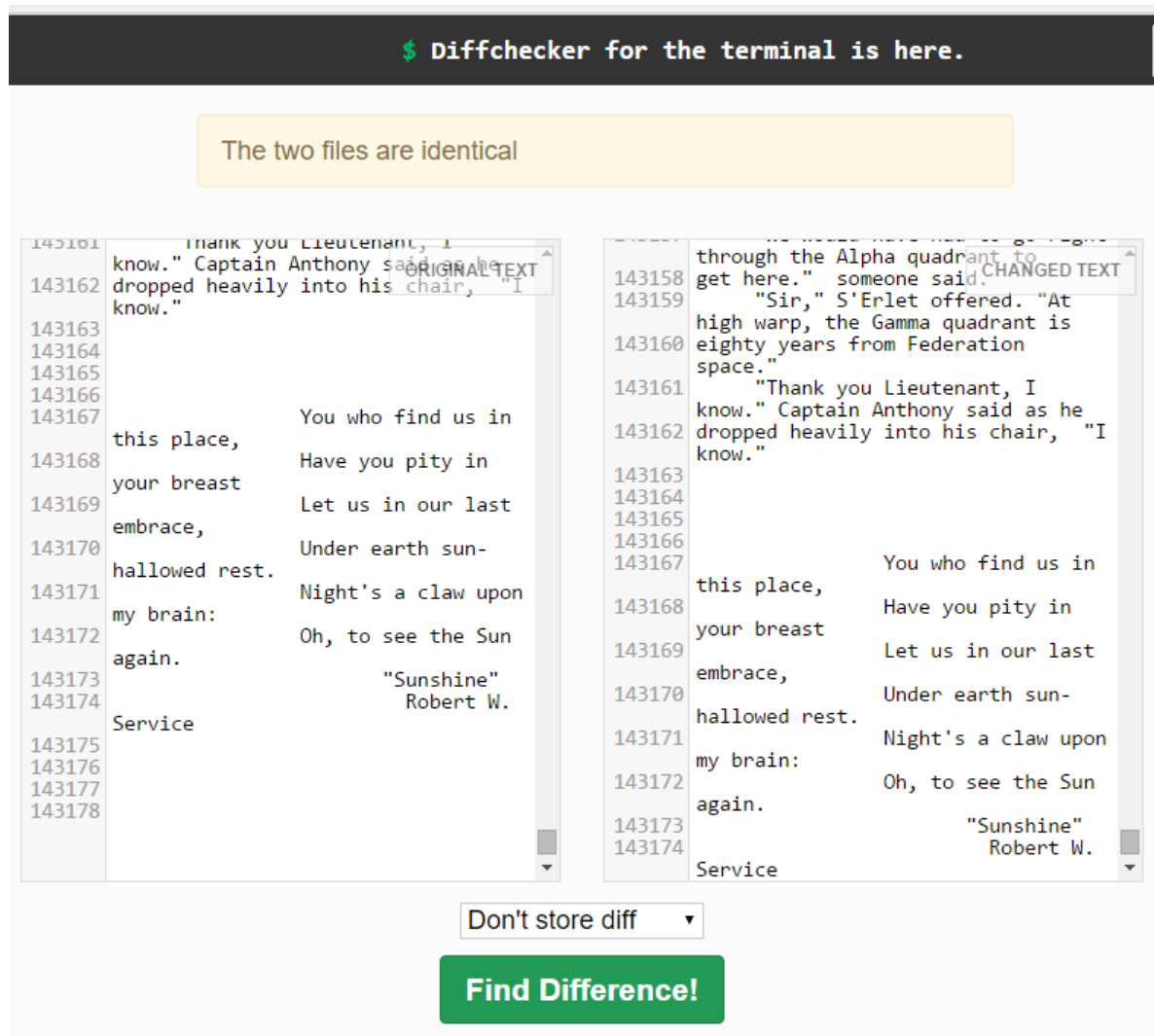
Client

```
moongom@moongom-asus: ~/Documents/a2
moongom@moongom-asus:~/Documents/a2$ ./server
The Client 2798 request file 'txt.jpg' priority 2
file open fail: No such file or directory
```

Server

- Input invalid file name
- Client receive error message and quit
- Server display error message too.

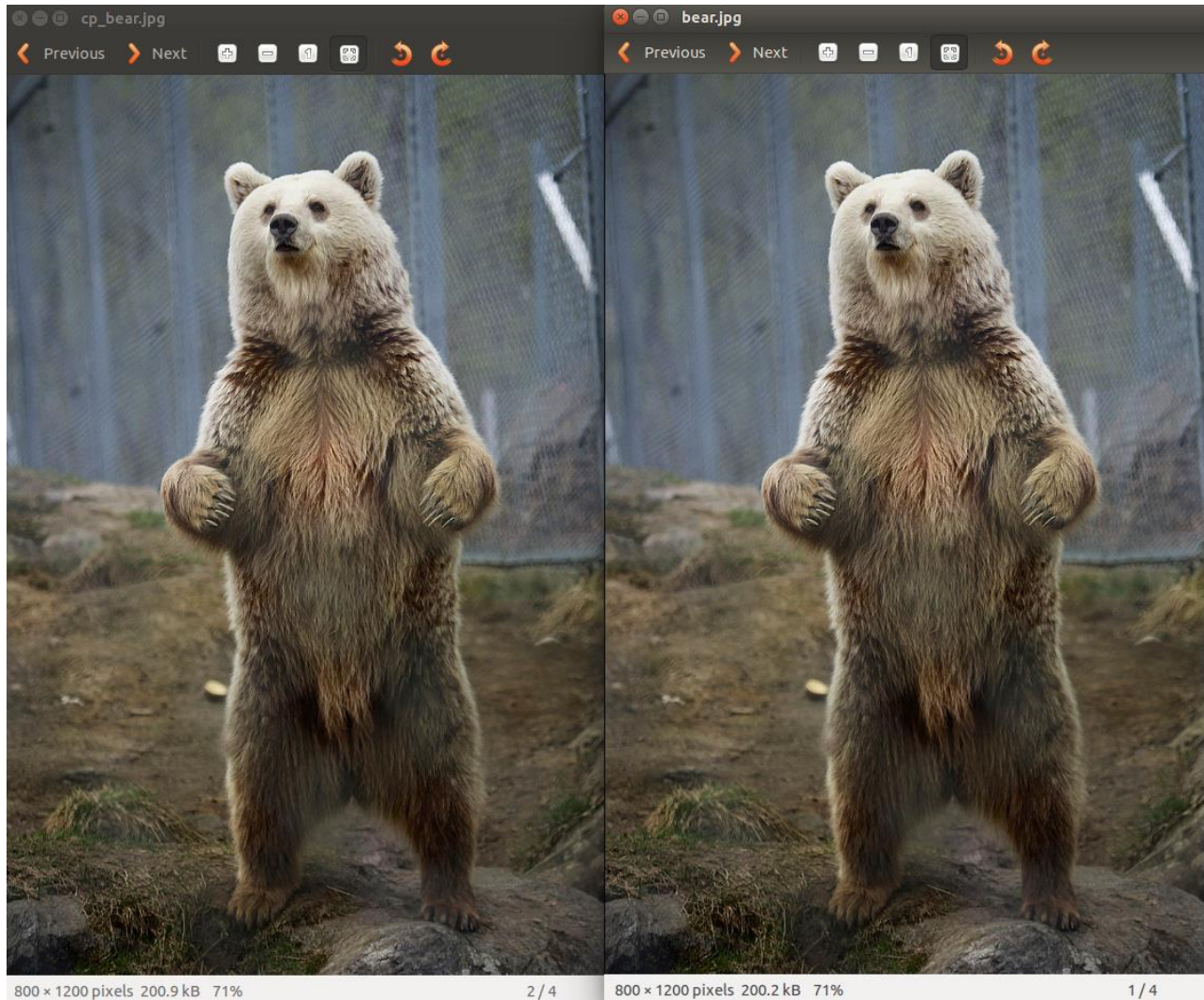
Figure 10



- The diffchecker checked two document
- The two files are identical
-



## Figure 11



- Original image is 200.2 kb and new one is 200.9
- Image looks same
- Change filename from bear(right) to cp\_bear(left)
- Image size is same

