# EX3 – FILE TRANSFER USING TCP

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# **Server Program:**

```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <string.h>
#include <fcntl.h>
int main(int argc, char **argv){
      int sockfd, flag, newfd, i = 0, len;
      struct sockaddr in server, client;
      FILE *fp;
      char file name[100];
      char buffer[1024];
      sockfd = socket(AF_INET, SOCK_STREAM, 0);
      if(sockfd < 0){
             perror("\nSocket cannot be created.");
             exit(0);
       }
      bzero(&server, sizeof(server));
      server.sin family = AF INET;
      server.sin addr.s addr = INADDR ANY;
      server.sin port = htons(7228);
      if(bind(sockfd, (struct sockaddr*)&server, sizeof(server)) < 0){</pre>
             perror("\nBind error occurred.");
             exit(0);
       }
      printf("Waiting for client...\n");
      listen(sockfd, 2);
      len = sizeof(client);
      newfd = accept(sockfd, (struct sockaddr*)&client, &len);
      flag = read(newfd, file name, sizeof(file name));
       printf("File to be read: %s", file name);
```

```
fp = open(file_name, O_RDONLY); //Open the specified file in read-only mode
       if(fp < 0){ //If file does not exist.
              perror("\nSpecified file could not be found.\n");
              strcpy("Error 404", buffer);
              return 1;
       }
       else{
              len = read(fp, buffer, 1024); //len stores the no. of characters read by read()
              close(fp);
              flag = write(newfd, buffer, len);
              printf("\nFile contents transferred.\n");
       }
       close(newfd);
       close(sockfd);
       return 0;
}
```

## **Output:**

```
Vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03 - ×

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(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$ cat sample.txt

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TCP Protocol

(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$ gcc Server.c -o s -w

(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$ ./s

Waiting for client...

File to be read: sample.txt

File contents transferred.

(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$
```

### **Client Program:**

```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <string.h>
#include <fcntl.h>
int main(int argc, char **argv){
      int sockfd, flag, i = 0, len;
      struct sockaddr in server, client;
      FILE *fp;
      char file name[100];
      char buffer[1024];
      sockfd = socket(AF INET, SOCK STREAM, 0);
      if(sockfd < 0){
             perror("\nSocket cannot be created.");
             exit(0);
      }
      bzero(&server, sizeof(server));
      server.sin family = AF INET;
      server.sin addr.s addr = inet addr(argv[1]);
      server.sin port = htons(7228);
      printf("\nEnter the File Location: ");
      scanf(" %[^\n]", file name);
      connect(sockfd, (struct sockaddr*)&server, sizeof(server));
      flag = write(sockfd, file name, sizeof(file name));
      flag = read(sockfd, buffer, sizeof(buffer));
      if(strcmp(buffer, "Error 404") == 0){ //if file was not found
             printf("File %s was not found.\n", file name);
             close(sockfd);
             exit(0);
      }
      printf("File contents transferred.");
      fp = open("newfile.txt", O_WRONLY|O_CREAT, S_IRWXU);
      //create a newfile to store the content in client machine with proper permissions
      len = strlen(buffer);
```

```
write(fp, buffer, len);
close(fp);

printf("\nContents of %s written to \"newfile.txt.\"\n", file_name);
close(sockfd);

return 0;
}
```

#### **Output:**

```
vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03 - יי x

File Edit View Search Terminal Help
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$ gcc Client.c -o c -w
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$ ./c 127.0.0.1

Enter the File Location: sample.txt
File contents transferred.
Contents of sample.txt written to "newfile.txt."
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$ cat sample.txt
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TCP Protocol
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$
```