

# TP3

## Programmation des sockets en C sous Linux

### Serveur multiciens en mode connecté

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/*Client.c*/
#include <stdio.h>

#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <sys/socket.h>
#include <sys/types.h>
#include <netinet/in.h>
#include <arpa/inet.h>
#define PORT 4444
int main(){
    int sockfd, ret;
    struct sockaddr_in serverAddr;
    int newSocket;
    struct sockaddr_in newAddr;
    socklen_t addr_size;
    char buffer[1024];
    pid_t childpid;
    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if(sockfd < 0){
        printf("[-]Error in connection.\n");
        exit(1);
    }
    printf("[+]Server Socket is created.\n");
    memset(&serverAddr, '\0', sizeof(serverAddr));
    serverAddr.sin_family = AF_INET;
    serverAddr.sin_port = htons(PORT);
    serverAddr.sin_addr.s_addr = inet_addr("127.0.0.1");
    ret = bind(sockfd, (struct sockaddr*)&serverAddr,
sizeof(serverAddr));
    if(ret < 0){
        printf("[-]Error in binding.\n");
        exit(1);
    }
    printf("[+]Bind to port %d\n", 4444);
    if(listen(sockfd, 10) == 0){
        printf("[+]Listening....\n");
    }else{
        printf("[-]Error in binding.\n");
    }
    while(1){
        newSocket = accept(sockfd, (struct sockaddr*)&newAddr,
&addr_size);
        if(newSocket < 0){
            exit(1);
        }
    }
}
```

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        printf("Connection accepted from %s:%d\n",
inet_ntoa(newAddr.sin_addr), ntohs(newAddr.sin_port));
        if((childpid = fork()) == 0){
            close(sockfd);
            while(1){
                recv(newSocket, buffer, 1024, 0);
                if(strcmp(buffer, ":exit") == 0){
                    printf("Disconnected from
%s:%d\n", inet_ntoa(newAddr.sin_addr), ntohs(newAddr.sin_port));
                    break;
                }else{
                    printf("Client: %s\n", buffer);
                    send(newSocket, buffer,
strlen(buffer), 0);
                    bzero(buffer, sizeof(buffer));
                }
            }
        }
        close(newSocket);
        return 0;
}

/*Server.c*/
#include <stdio.h>

#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <sys/socket.h>
#include <sys/types.h>
#include <netinet/in.h>
#include <arpa/inet.h>
#define PORT 4444
int main(){
    int clientSocket, ret;
    struct sockaddr_in serverAddr;
    char buffer[1024];
    clientSocket = socket(AF_INET, SOCK_STREAM, 0);
    if(clientSocket < 0){
        printf("[-]Error in connection.\n");
        exit(1);
    }
    printf("[+]Client Socket is created.\n");
    memset(&serverAddr, '\0', sizeof(serverAddr));
    serverAddr.sin_family = AF_INET;
    serverAddr.sin_port = htons(PORT);
    serverAddr.sin_addr.s_addr = inet_addr("127.0.0.1");

```

```
        ret = connect(clientSocket, (struct sockaddr*)&serverAddr,
sizeof(serverAddr));
    if(ret < 0){
        printf("[-]Error in connection.\n");
        exit(1);
    }
    printf("[+]Connected to Server.\n");
    while(1){
        printf("Client: \t");
        scanf("%s", &buffer[0]);
        send(clientSocket, buffer, strlen(buffer), 0);
        if(strcmp(buffer, ":exit") == 0){
            close(clientSocket);
            printf("[-]Disconnected from server.\n");
            exit(1);
        }
        if(recv(clientSocket, buffer, 1024, 0) < 0){
            printf("[-]Error in receiving data.\n");
        }else{
            printf("Server: \t%s\n", buffer);
        }
    }
    return 0;
}
```