

Именованные каналы

Джумаев Бегенч

10.06.2021

Цель работы

Приобретение практических навыков работы с именованными каналами

```
#ifndef __COMMON_H__
#define __COMMON_H__
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<errno.h>
#include<sys/types.h>
#include<sys/stat.h>
#include<fcntl.h>
#define FIFO_NAME    "/tmp/fifo"
#define MAX_BUFF     80
#endif
```

File Edit Options Buffers Tools C Help

```
#include "common.h"
int
main()
{
    int readfd;
    int n;
    char buff[MAX_BUFF];
    printf("FIFO Server...\n");
    if (mknod(FIFO_NAME, S_IFIFO | 0666, 0) < 0)
    {
        fprintf(stderr, "%s: Невозможно создать FIFO (%s)\n",
            __FILE__, strerror(errno));
        exit(-1);
    }
    if ((readfd = open(FIFO_NAME, O_RDONLY)) < 0)
    {
        fprintf(stderr, "%s: Невозможно открыть FIFO (%s)\n",
            __FILE__, strerror(errno));
        exit(-2);
    }
    while ((n = read(readfd, buff, MAX_BUFF)) > 0)
    {
```

U:*** server.c Top L22 (C/*l Abbrev) Чт июн 10 11:54 0.13

```
    {
        if (write(1, buff, n) != n)
        {
            fprintf(stderr, "%s: Ошибка вывода (%s)\n",
                __FILE__, strerror(errno));
            exit(-3);
        }
    }
}
```

```
#include "common.h"
#define MESSAGE "Hello Server!!!\n"
int
main()
{
    int writefd;
    int msglen;
    printf("FIFO Client...\n");
    if ((writefd = open (FIFO_NAME, O_WRONLY)) < 0)
    {
        fprintf(stderr, "%s: Невозможно открыть FIFO (%s)\n",
            __FILE__, strerror(errno));
        exit(-1);
    }
    msglen = strlen(MESSAGE);
    if (write(writefd, MESSAGE, msglen) != msglen)
    {
        fprintf(stderr, "%s: Ошибка записи в FIFO (%s)\n",
            __FILE__, strerror(errno));
        exit(-2);
    }
    close(writefd);
    exit(0);
}
```

Common.h

```
#ifndef __COMMON_H__
#define __COMMON_H__
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<errno.h>
#include<sys/types.h>
#include<sys/stat.h>
#include<fcntl.h>
#define FIFO_NAME    "/tmp/fifo"
#define MAX_BUFF     80
#endif
```

```
1 #include "common.h"
2 int
3 main()
4 {
5     int readfd;
6     int n;
7     char buff[MAX_BUFF];
8     printf("FIFO Server...\n");
9     if (mknod(FIFO_NAME, S_IFIFO | 0666, 0) < 0)
10     {
11         fprintf(stderr, "%s: Невозможно создать FIFO (%s)\n",
12             __FILE__, strerror(errno));
13         exit(-1);
14     }
15     if ((readfd = open(FIFO_NAME, O_RDONLY)) < 0)
16     {
17         fprintf(stderr, "%s: Невозможно открыть FIFO (%s)\n",
18             __FILE__, strerror(errno));
19         exit(-2);
20     }
21     clock_t now=time(NULL), start=time(NULL);
22     while(now-start<30)
23     {
24         while((n=read(readfd, buff, MAX_BUFF)) > 0)
25         {
26             if(write(1, buff, n) != n)
27             {
28                 fprintf(stderr, "%s: Ошибка вывода (%s)\n",
29                     __FILE__, strerror(errno));
30                 exit(-3);
31             }
32         }
33         now=time(NULL);
34     }
35     printf("\n----\nserver timeout\n%u seconds passed!\n----\n",now-start);
36     close(readfd);
37     if (unlink(FIFO_NAME) < 0)
38     {
39         fprintf(stderr, "%s: Невозможно удалить FIFO (%s)\n",
40             __FILE__, strerror(errno));
41         exit(-4);
42     }
43     exit(0);
44 }
```



```
#include "common.h"
#define MESSAGE "Hello Server!!!\n"
int
main()
{
    int writefd;
    int msglen;
    printf("FIFO Client...\n");
    if ((writefd = open (FIFO_NAME, O_WRONLY)) < 0)
    {
        fprintf(stderr, "%s: Невозможно открыть FIFO (%s)\n",
            __FILE__, strerror(errno));
        exit(-1);
    }
    msglen = strlen(MESSAGE);
    if (write(writefd, MESSAGE, msglen) != msglen)
    {
        fprintf(stderr, "%s: Ошибка записи в FIFO (%s)\n",
            __FILE__, strerror(errno));
        exit(-2);
    }
    close(writefd);
    exit(0);
}
```

```

#include "common.h"
#define MESSAGE "Hello Server!!!\n"
int
main()
{
    int writefd;
    int msglen;
    int message[10];
    int count;
    long long int T;
    for (count=0; count<=5; ++count){
        sleep(5);
        T = (long long int) time(0);
        sprintf (message, "%lli", T);
        message[9] = '\n';
        printf("FIFO Client...\n");
        if ((writefd = open (FIFO_NAME, O_WRONLY)) < 0)
        {
            fprintf(stderr, "%s: Не возможно открыт FIFO (%s)\n",
                __FILE__, strerror(errno));
            exit(-1);
        }
        msglen = strlen (MESSAGE);
        if (write(writefd, MESSAGE, msglen) != msglen)
        {
            fprintf(stderr, "%s: Ошибка записи в FIFO (%s)\n",
                __FILE__, strerror(errno));
            exit(-2);
        }
    }
    close (writefd);
    exit(0);
}

```

```
bdzhumaev@dk5n55 ~/lab15 $ ./client
FIFO Client...
bdzhumaev@dk5n55 ~/lab15 $ █
```

```
bdzhumaev@dk5n55 ~/lab15 $ ./client2
FIFO Client...
FIFO Client...
FIFO Client...
FIFO Client...
FIFO Client...
FIFO Client...
bdzhumaev@dk5n55 ~/lab15 $ █
```

```
bdzhumae@dk5n55 ~/lab15 $ ./server
```

```
FIFO Server...
```

```
Hello Server!!!
```

```
Hello Server!!!
```

```
Hello Server!!!
```

```
Hello Server!!!
```

```
Hello Server!!!
```

```
Hello Server!!!
```

```
Hello Server!!!
```

```
-----
```

```
server timeout
```

```
48 seconds passed!
```

```
-----
```

Приобрел практические навыки работы с именованными каналами.