NAME

mq_getattr, mq_setattr − get/set message queue attributes

LIBRARY

Real-time library (*librt*, *−lrt*)

SYNOPSIS

#include <mqueue.h>

int mq_getattr(mqd_t *mqdes***, struct mq_attr ****attr***);**
int mq_setattr(mqd_t *mqdes***, const struct mq_attr *restrict** *newattr***,**
struct mq_attr *restrict *oldattr***);**

DESCRIPTION

mq_getattr() and **mq_setattr**() respectively retrieve and modify attributes of the message queue referred to by the message queue descriptor *mqdes*.

mq_getattr() returns an *mq_attr* structure in the buffer pointed by *attr*. This structure is defined as:

```
struct mq_attr {
    long mq_flags;       /* Flags: 0 or O_NONBLOCK */
    long mq_maxmsg;      /* Max. # of messages on queue */
    long mq_msgsize;     /* Max. message size (bytes) */
    long mq_curmsgs;     /* # of messages currently in queue */
};
```

The *mq_flags* field contains flags associated with the open message queue description. This field is initialized when the queue is created by **mq_open**(3). The only flag that can appear in this field is**O_NONBLOCK**.

The *mq_maxmsg* and *mq_msgsize* fields are set when the message queue is created by **mq_open**(3). The *mq_maxmsg* field is an upper limit on the number of messages that may be placed on the queue using **mq_send**(3). The*mq_msgsize* field is an upper limit on the size of messages that may be placed on the queue. Both of these fields must have a value greater than zero. Two */proc* files that place ceilings on the values for these fields are described in **mq_overview**(7).

The *mq_curmsgs* field returns the number of messages currently held in the queue.

mq_setattr() sets message queue attributes using information supplied in the *mq_attr* structure pointed to by *newattr*. The only attribute that can be modified is the setting of the **O_NONBLOCK** flag in *mq_flags*. The other fields in *newattr* are ignored. If the *oldattr* field is not NULL, then the buffer that it points to is used to return an *mq_attr* structure that contains the same information that is returned by **mq_getattr**().

RETURN VALUE

On success **mq_getattr**() and **mq_setattr**() return 0; on error, −1 is returned, with *errno* set to indicate the error.

ERRORS

EBADF
The message queue descriptor specified in *mqdes* is invalid.

EINVAL
newattr−>mq_flags contained set bits other than **O_NONBLOCK**.

ATTRIBUTES

For an explanation of the terms used in this section, see **attributes**(7).

Interface	Attribute	Value
mq_getattr(), **mq_setattr**()	Thread safety	MT-Safe

STANDARDS

POSIX.1-2001, POSIX.1-2008.

NOTES

On Linux, **mq_getattr**() and **mq_setattr**() are library functions layered on top of the **mq_getsetattr**(2) system call.

EXAMPLES

The program below can be used to show the default *mq_maxmsg* and *mq_msgsize* values that are assigned to a message queue that is created with a call to **mq_open**(3) in which the *attr* argument is NULL. Here is an example run of the program:

```
$ ./a.out /testq
Maximum # of messages on queue:   10
Maximum message size:             8192
```

Since Linux 3.5, the following */proc* files (described in **mq_overview**(7)) can be used to control the defaults:

```
$ uname -sr
Linux 3.8.0
$ cat /proc/sys/fs/mqueue/msg_default
10
$ cat /proc/sys/fs/mqueue/msgsize_default
8192
```

Program source

```
#include <fcntl.h>
#include <mqueue.h>
#include <stdio.h>
#include <stdlib.h>
#include <sys/stat.h>
#include <unistd.h>

#define errExit(msg)    do { perror(msg); exit(EXIT_FAILURE); \
                        } while (0)

int
main(int argc, char *argv[])
{
    mqd_t mqd;
    struct mq_attr attr;

    if (argc != 2) {
        fprintf(stderr, "Usage: %s mq-name\n", argv[0]);
        exit(EXIT_FAILURE);
    }

    mqd = mq_open(argv[1], O_CREAT | O_EXCL, 0600, NULL);
    if (mqd == (mqd_t) -1)
        errExit("mq_open");

    if (mq_getattr(mqd, &attr) == -1)
        errExit("mq_getattr");

    printf("Maximum # of messages on queue:   %ld\n", attr.mq_maxmsg);
    printf("Maximum message size:             %ld\n", attr.mq_msgsize);

    if (mq_unlink(argv[1]) == -1)
```

```
            errExit("mq_unlink");

        exit(EXIT_SUCCESS);
    }
```

SEE ALSO

mq_close(3), **mq_notify**(3), **mq_open**(3), **mq_receive**(3), **mq_send**(3), **mq_unlink**(3), **mq_overview**(7)