

NAME

mq_getattr, mq_setattr - get/set message queue attributes

SYNOPSIS

```
#include <mqueue.h>
```

```
int mq_getattr(mqd_t mqdes, struct mq_attr *attr);
```

```
int mq_setattr(mqd_t mqdes, const struct mq_attr *newattr,
               struct mq_attr *oldattr);
```

Link with *-lrt*.

DESCRIPTION

mq_getattr() and **mq_setattr()** respectively retrieve and modify attributes of the message queue referred to by the 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\(3\)](#).

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 descriptor specified in *mqdes* is invalid.

EINVAL

newattr->mq_flags contained set bits other than **O_NONBLOCK**.

ATTRIBUTES

Multithreading (see [pthreads\(7\)](#))

The **mq_getattr()** and **mq_setattr()** functions are thread-safe.

CONFORMING TO

POSIX.1-2001.

NOTES

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

EXAMPLE

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 course

```
#include <mqueue.h>
#include <sys/stat.h>
#include <fcntl.h>
#include <stdio.h>
#include <stdlib.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-namen, argv[0]);
        exit(EXIT_FAILURE);
    }

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

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

    printf(Maximum # of messages on queue: %ldn, attr.mq_maxmsg);
    printf(Maximum message size: %ldn, 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\(7\)](#)

COLOPHON

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