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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'mq_send.3p' command

$ man mq_send.3p

MQ_SEND(3P) POSIX Programmer's Manual MQ_SEND(3P)

PROLOG

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

NAME

mq_send, mq_timedsend ? send a message to a message queue (REALTIME)

SYNOPSIS

```
#include <mqueue.h>
int mq_send(mqd_t mqdes, const char *msg_ptr, size_t msg_len,
    unsigned msg_prio);
#include <mqueue.h>
#include <time.h>
int mq_timedsend(mqd_t mqdes, const char *msg_ptr, size_t msg_len,
    unsigned msg_prio, const struct timespec *abstime);
```

DESCRIPTION

The mq_send() function shall add the message pointed to by the argument msg_ptr to the message queue specified by mqdes. The msg_len argument specifies the length of the message, in bytes, pointed to by msg_ptr.

The value of msg_len shall be less than or equal to the mq_msgsize at? tribute of the message queue, or mq_send() shall fail.

If the specified message queue is not full, mq_send() shall behave as

if the message is inserted into the message queue at the position indi? cated by the msg_prio argument. A message with a larger numeric value of msg_prio shall be inserted before messages with lower values of msg_prio. A message shall be inserted after other messages in the queue, if any, with equal msg_prio. The value of msg_prio shall be less than {MQ_PRIO_MAX}.

If the specified message queue is full and O_NONBLOCK is not set in the message queue description associated with mqdes, mq_send() shall block until space becomes available to enqueue the message, or until mq_send() is interrupted by a signal. If more than one thread is wait? ing to send when space becomes available in the message queue and the Priority Scheduling option is supported, then the thread of the highest priority that has been waiting the longest shall be unblocked to send its message. Otherwise, it is unspecified which waiting thread is un? blocked. If the specified message queue is full and O_NONBLOCK is set in the message queue description associated with mqdes, the message shall not be queued and mq_send() shall return an error.

The mq_timedsend() function shall add a message to the message queue specified by mqdes in the manner defined for the mq_send() function. However, if the specified message queue is full and O_NONBLOCK is not set in the message queue description associated with mqdes, the wait for sufficient room in the queue shall be terminated when the specified timeout expires. If O_NONBLOCK is set in the message queue description, this function shall be equivalent to mq_send().

The timeout shall expire when the absolute time specified by abstime passes, as measured by the clock on which timeouts are based (that is, when the value of that clock equals or exceeds abstime), or if the ab? solute time specified by abstime has already been passed at the time of the call.

The timeout shall be based on the CLOCK_REALTIME clock. The resolution of the timeout shall be the resolution of the clock on which it is based. The timespec argument is defined in the <time.h> header.

Under no circumstance shall the operation fail with a timeout if there

is sufficient room in the queue to add the message immediately. The va?
lidity of the abstime parameter need not be checked when there is suf?
ficient room in the queue.

RETURN VALUE

Upon successful completion, the mq_send() and mq_timedsend() functions shall return a value of zero. Otherwise, no message shall be enqueued, the functions shall return -1, and errno shall be set to indicate the error.

ERRORS

The mq_send() and mq_timedsend() functions shall fail if:

EAGAIN The O_NONBLOCK flag is set in the message queue description as?
sociated with mqdes, and the specified message queue is full.

EBADF The mqdes argument is not a valid message queue descriptor open for writing.

EINTR A signal interrupted the call to mq_send() or mq_timedsend().

EINVAL The value of msg_prio was outside the valid range.

EINVAL The process or thread would have blocked, and the abstime param?
eter specified a nanoseconds field value less than zero or greater than or equal to 1000 million.

EMSGSIZE
The specified message length, msg_len, exceeds the message size attribute of the message queue.

ETIMEDOUT
The O_NONBLOCK flag was not set when the message queue was opened, but the timeout expired before the message could be added to the queue.

The following sections are informative.

EXAMPLES

None.

APPLICATION USAGE

The value of the symbol {MQ_PRIO_MAX} limits the number of priority levels supported by the application. Message priorities range from 0 to {MQ_PRIO_MAX}-1.

RATIONALE

None.

FUTURE DIRECTIONS

None.

SEE ALSO

mq_open(), mq_receive(), mq_setattr(), time()

The Base Definitions volume of POSIX.1?2017, <mqueue.h>, <time.h>