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

msgctl — XSI message control operations

SYNOPSIS

#include <sys/msg.h>

int msgctl(int *msqid*, int *cmd*, struct msqid_ds **buf*);

DESCRIPTION

The *msgctl*() function operates on XSI message queues (see the Base Definitions volume of POSIX.1-2008, *Section 3.225*, *Message Queue*). It is unspecified whether this function interoperates with the realtime interprocess communication facilities defined in *Section 2.8*, *Realtime*.

The *msgctl*() function shall provide message control operations as specified by *cmd*. The following values for *cmd*, and the message control operations they specify, are:

IPC_STAT   Place the current value of each member of the **msqid_ds** data structure associated with *msqid* into the structure pointed to by *buf*. The contents of this structure are defined in *<sys/msg.h>*.

IPC_SET   Set the value of the following members of the **msqid_ds** data structure associated with *msqid* to the corresponding value found in the structure pointed to by *buf*:

> **msg_perm.uid**
> **msg_perm.gid**
> **msg_perm.mode**
> **msg_qbytes**

Also, the *msg_ctime* timestamp shall be set to the current time, as described in *Section 2.7.1*, *IPC General Description*.

IPC_SET can only be executed by a process with appropriate privileges or that has an effective user ID equal to the value of **msg_perm.cuid** or **msg_perm.uid** in the **msqid_ds** data structure associated with *msqid*. Only a process with appropriate privileges can raise the value of **msg_qbytes**.

IPC_RMID   Remove the message queue identifier specified by *msqid* from the system and destroy the message queue and **msqid_ds** data structure associated with it. IPC_RMD can only be executed by a process with appropriate privileges or one that has an effective user ID equal to the value of **msg_perm.cuid** or **msg_perm.uid** in the **msqid_ds** data structure associated with *msqid*.

RETURN VALUE

Upon successful completion, *msgctl*() shall return 0; otherwise, it shall return −1 and set *errno* to indicate the error.

ERRORS

The *msgctl*() function shall fail if:

EACCES
> The argument *cmd* is IPC_STAT and the calling process does not have read permission; see *Section 2.7*, *XSI Interprocess Communication*.

EINVAL
> The value of *msqid* is not a valid message queue identifier; or the value of *cmd* is not a valid command.

EPERM
> The argument *cmd* is IPC_RMID or IPC_SET and the effective user ID of the calling process is not equal to that of a process with appropriate privileges and it is not equal to the value of **msg_perm.cuid** or **msg_perm.uid** in the data structure associated with *msqid*.

EPERM

The argument *cmd* is IPC_SET, an attempt is being made to increase to the value of **msg_qbytes**, and the effective user ID of the calling process does not have appropriate privileges.

The following sections are informative.

EXAMPLES

None.

APPLICATION USAGE

The POSIX Realtime Extension defines alternative interfaces for interprocess communication (IPC). Application developers who need to use IPC should design their applications so that modules using the IPC routines described in *Section 2.7*, *XSI Interprocess Communication* can be easily modified to use the alternative interfaces.

RATIONALE

None.

FUTURE DIRECTIONS

None.

SEE ALSO

Section 2.7, *XSI Interprocess Communication*, *Section 2.8*, *Realtime*, *mq_close*( ), *mq_getattr*( ), *mq_notify*( ), *mq_open*( ), *mq_receive*( ), *mq_send*( ), *mq_setattr*( ), *mq_unlink*( ), *msgget*( ), *msgrcv*( ), *msgsnd*( )

The Base Definitions volume of POSIX.1-2008, *Section 3.225*, *Message Queue*, **<sys_msg.h>**

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