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

\$ man sched_setscheduler.3p

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

sched_setscheduler ? set scheduling policy and parameters (REALTIME)

SYNOPSIS

```
#include <sched.h>

int sched_setscheduler(pid_t pid, int policy,
    const struct sched_param *param);
```

DESCRIPTION

The sched_setscheduler() function shall set the scheduling policy and scheduling parameters of the process specified by pid to policy and the parameters specified in the sched_param structure pointed to by param, respectively. The value of the sched_priority member in the sched_param structure shall be any integer within the inclusive priority range for the scheduling policy specified by policy. If the value of pid is negative, the behavior of the sched_setscheduler() function is unspecified.

The possible values for the policy parameter are defined in the <sched.h> header.

If a process specified by pid exists, and if the calling process has permission, the scheduling policy and scheduling parameters shall be set for the process whose process ID is equal to pid.

If pid is zero, the scheduling policy and scheduling parameters shall be set for the calling process.

The conditions under which one process has appropriate privileges to change the scheduling parameters of another process are implementation-defined.

Implementations may require that the requesting process have permission to set its own scheduling parameters or those of another process. Additionally, implementation-defined restrictions may apply as to the appropriate privileges required to set the scheduling policy of the process, or the scheduling policy of another process, to a particular value.

The sched_setscheduler() function shall be considered successful if it succeeds in setting the scheduling policy and scheduling parameters of the process specified by pid to the values specified by policy and the structure pointed to by param, respectively.

See Scheduling Policies for a description on how this function affects the scheduling of the threads within the target process.

If the current scheduling policy for the target process is not SCHED_FIFO, SCHED_RR, or SCHED_SPORADIC, the result is implementation-defined; this case includes the SCHED_OTHER policy.

The specified sched_ss_repl_period shall be greater than or equal to the specified sched_ss_init_budget for the function to succeed; if it is not, then the function shall fail.

The value of sched_ss_max_repl shall be within the inclusive range [1, {SS_REPL_MAX}] for the function to succeed; if not, the function shall fail. It is unspecified whether the sched_ss_repl_period and sched_ss_init_budget values are stored as provided by this function or are rounded to align with the resolution of the clock being used.

This function is not atomic with respect to other threads in the process. Threads may continue to execute while this function call is in

the process of changing the scheduling policy and associated scheduling parameters for the underlying kernel-scheduled entities used by the process contention scope threads.

RETURN VALUE

Upon successful completion, the function shall return the former scheduling policy of the specified process. If the `sched_setscheduler()` function fails to complete successfully, the policy and scheduling parameters shall remain unchanged, and the function shall return a value of -1 and set `errno` to indicate the error.

ERRORS

The `sched_setscheduler()` function shall fail if:

EINVAL The value of the policy parameter is invalid, or one or more of the parameters contained in `param` is outside the valid range for the specified scheduling policy.

EPERM The requesting process does not have permission to set either or both of the scheduling parameters or the scheduling policy of the specified process.

ESRCH No process can be found corresponding to that specified by `pid`.

The following sections are informative.

EXAMPLES

None.

APPLICATION USAGE

None.

RATIONALE

None.

FUTURE DIRECTIONS

None.

SEE ALSO

Scheduling Policies, `sched_getparam()`, `sched_getscheduler()`, `sched_setparam()`

The Base Definitions volume of POSIX.1?2017, `<sched.h>`

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