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Rocky Enterprise Linux 9.2 Manual Pages on command 'posixoptions.7'

\$ man posixoptions.7

POSIXOPTIONS(7) Linux Programmer's Manual POSIXOPTIONS(7)

NAME

posixoptions - optional parts of the POSIX standard

DESCRIPTION

The POSIX standard (the information below is from POSIX.1-2001) describes a set of behaviors and interfaces for a compliant system. However, many interfaces are optional and there are feature test macros to test the availability of interfaces at compile time, and functions `sysconf(3)`, `fpathconf(3)`, `pathconf(3)`, `confstr(3)` to do this at run time. From shell scripts one can use `getconf(1)`. For more detail, see `sysconf(3)`.

We give the name of the POSIX abbreviation, the option, the name of the `sysconf(3)` parameter used to inquire about the option, and possibly a very short description. Much more precise detail can be found in the POSIX standard itself, versions of which can nowadays be accessed freely on the web.

ADV - _POSIX_ADVISORY_INFO - _SC_ADVISORY_INFO

The following advisory functions are present:

`posix_fadvise()`
`posix_fallocate()`
`posix_memalign()`
`posix_madvise()`

AIO - _POSIX_ASYNCHRONOUS_IO - _SC_ASYNCHRONOUS_IO

The header `<aio.h>` is present. The following functions are present:

`aio_cancel()`
`aio_error()`

aio_fsync()
aio_read()
aio_return()
aio_suspend()
aio_write()
lio_listio()

BAR - _POSIX_BARRIERS - _SC_BARRIERS

This option implies the _POSIX_THREADS and _POSIX_THREAD_SAFE_FUNCTIONS options. The following functions are present:

pthread_barrier_destroy()
pthread_barrier_init()
pthread_barrier_wait()
pthread_barrierattr_destroy()
pthread_barrierattr_init()

--- - POSIX_CHOWN_RESTRICTED

If this option is in effect (as it always is under POSIX.1-2001), then only root may change the owner of a file, and nonroot can set the group of a file only to one of the groups it belongs to. This affects the following functions

chown()
fchown()

CS - _POSIX_CLOCK_SELECTION - _SC_CLOCK_SELECTION

This option implies the _POSIX_TIMERS option. The following functions are present:

pthread_condattr_getclock()
pthread_condattr_setclock()
clock_nanosleep()

If CLOCK_REALTIME is changed by the function clock_settime(), then this affects all timers set for an absolute time.

CPT - _POSIX_CPUTIME - _SC_CPUTIME

The CLOCK_PROCESS_CPUTIME_ID clock ID is supported. The initial value of this clock is 0 for each process. This option implies the _POSIX_TIMERS option. The function clock_getcpuclockid() is present.

--- - _POSIX_FILE_LOCKING - _SC_FILE_LOCKING

This option has been deleted. Not in final XPG6.

FSC - _POSIX_FSYNC - _SC_FSYNC

The function fsync() is present.

IP6 - _POSIX_IPV6 - _SC_IPV6

Internet Protocol Version 6 is supported.

--- - _POSIX_JOB_CONTROL - _SC_JOB_CONTROL

If this option is in effect (as it always is under POSIX.1-2001), then the system implements

POSIX-style job control, and the following functions are present:

- setpgid()
- tcdrain()
- tcflush()
- tcgetpgrp()
- tcsendbreak()
- tcsetattr()
- tcsetpgrp()

MF - _POSIX_MAPPED_FILES - _SC_MAPPED_FILES

Shared memory is supported. The include file <sys/mman.h> is present. The following functions are present:

- mmap()
- msync()
- munmap()

ML - _POSIX_MEMLOCK - _SC_MEMLOCK

Shared memory can be locked into core. The following functions are present:

- mlockall()
- munlockall()

MR/MLR - _POSIX_MEMLOCK_RANGE - _SC_MEMLOCK_RANGE

More precisely, ranges can be locked into core. The following functions are present:

- mlock()
- munlock()

MPR - _POSIX_MEMORY_PROTECTION - _SC_MEMORY_PROTECTION

The function mprotect() is present.

MSG - _POSIX_MESSAGE_PASSING - _SC_MESSAGE_PASSING

The include file <mqueue.h> is present. The following functions are present:

- mq_close()

mq_getattr()

mq_notify()

mq_open()

mq_receive()

mq_send()

mq_setattr()

mq_unlink()

MON - _POSIX_MONOTONIC_CLOCK - _SC_MONOTONIC_CLOCK

CLOCK_MONOTONIC is supported. This option implies the _POSIX_TIMERS option. The follow?

ing functions are affected:

aio_suspend()

clock_getres()

clock_gettime()

clock_settime()

timer_create()

--- - _POSIX_MULTI_PROCESS - _SC_MULTI_PROCESS

This option has been deleted. Not in final XPG6.

--- - _POSIX_NO_TRUNC

If this option is in effect (as it always is under POSIX.1-2001), then pathname components

longer than NAME_MAX are not truncated, but give an error. This property may be dependent

on the path prefix of the component.

PIO - _POSIX_PRIORITIZED_IO - _SC_PRIORITIZED_IO

This option says that one can specify priorities for asynchronous I/O. This affects the

functions

aio_read()

aio_write()

PS - _POSIX_PRIORITY_SCHEDULING - _SC_PRIORITY_SCHEDULING

The include file <sched.h> is present. The following functions are present:

sched_get_priority_max()

sched_get_priority_min()

sched_getparam()

sched_getscheduler()

sched_rr_get_interval()

sched_setparam()
sched_setscheduler()
sched_yield()

If also `_POSIX_SPAWN` is in effect, then the following functions are present:

posix_spawnattr_getschedparam()
posix_spawnattr_getschedpolicy()
posix_spawnattr_setschedparam()
posix_spawnattr_setschedpolicy()

RS - `_POSIX_RAW_SOCKETS`

Raw sockets are supported. The following functions are affected:

getsockopt()
setsockopt()

--- - `_POSIX_READER_WRITER_LOCKS` - `_SC_READER_WRITER_LOCKS`

This option implies the `_POSIX_THREADS` option. Conversely, under POSIX.1-2001 the `_POSIX_THREADS` option implies this option.

The following functions are present:

pthread_rwlock_destroy()
pthread_rwlock_init()
pthread_rwlock_rdlock()
pthread_rwlock_tryrdlock()
pthread_rwlock_trywrlock()
pthread_rwlock_unlock()
pthread_rwlock_wrlock()
pthread_rwlockattr_destroy()
pthread_rwlockattr_init()

RTS - `_POSIX_REALTIME_SIGNALS` - `_SC_REALTIME_SIGNALS`

Realtime signals are supported. The following functions are present:

sigqueue()
sigtimedwait()
sigwaitinfo()

--- - `_POSIX_REGEX` - `_SC_REGEX`

If this option is in effect (as it always is under POSIX.1-2001), then POSIX regular ex-

pressions are supported and the following functions are present:

regcomp()

regerror()

regexec()

regfree()

--- - _POSIX_SAVED_IDS - _SC_SAVED_IDS

If this option is in effect (as it always is under POSIX.1-2001), then a process has a saved set-user-ID and a saved set-group-ID. The following functions are affected:

exec()

kill()

seteuid()

setegid()

setgid()

setuid()

SEM - _POSIX_SEMAPHORES - _SC_SEMAPHORES

The include file <semaphore.h> is present. The following functions are present:

sem_close()

sem_destroy()

sem_getvalue()

sem_init()

sem_open()

sem_post()

sem_trywait()

sem_unlink()

sem_wait()

SHM - _POSIX_SHARED_MEMORY_OBJECTS - _SC_SHARED_MEMORY_OBJECTS

The following functions are present:

mmap()

munmap()

shm_open()

shm_unlink()

--- - _POSIX_SHELL - _SC_SHELL

If this option is in effect (as it always is under POSIX.1-2001), the function system() is present.

SPN - _POSIX_SPAWN - _SC_SPAWN

This option describes support for process creation in a context where it is difficult or impossible to use `fork()`, for example, because no MMU is present.

If `_POSIX_SPAWN` is in effect, then the include file `<spawn.h>` and the following functions are present:

- `posix_spawn()`
- `posix_spawn_file_actions_addclose()`
- `posix_spawn_file_actions_adddup2()`
- `posix_spawn_file_actions_addopen()`
- `posix_spawn_file_actions_destroy()`
- `posix_spawn_file_actions_init()`
- `posix_spawnattr_destroy()`
- `posix_spawnattr_getsigdefault()`
- `posix_spawnattr_getflags()`
- `posix_spawnattr_getpgroup()`
- `posix_spawnattr_getsigmask()`
- `posix_spawnattr_init()`
- `posix_spawnattr_setsigdefault()`
- `posix_spawnattr_setflags()`
- `posix_spawnattr_setpgroup()`
- `posix_spawnattr_setsigmask()`
- `posix_spawnnp()`

If also `_POSIX_PRIORITY_SCHEDULING` is in effect, then the following functions are present:

- `posix_spawnattr_getschedparam()`
- `posix_spawnattr_getschedpolicy()`
- `posix_spawnattr_setschedparam()`
- `posix_spawnattr_setschedpolicy()`

SPI - _POSIX_SPIN_LOCKS - _SC_SPIN_LOCKS

This option implies the `_POSIX_THREADS` and `_POSIX_THREAD_SAFE_FUNCTIONS` options. The following functions are present:

- `pthread_spin_destroy()`
- `pthread_spin_init()`
- `pthread_spin_lock()`

pthread_spin_trylock()

pthread_spin_unlock()

SS - _POSIX_SPORADIC_SERVER - _SC_SPORADIC_SERVER

The scheduling policy SCHED_SPORADIC is supported. This option implies the _POSIX_PRIORITY_SCHEDULING option. The following functions are affected:

ITY_SCHEDULING option. The following functions are affected:

sched_setparam()

sched_setscheduler()

SIO - _POSIX_SYNCHRONIZED_IO - _SC_SYNCHRONIZED_IO

The following functions are affected:

open()

msync()

fsync()

fdatasync()

TSA - _POSIX_THREAD_ATTR_STACKADDR - _SC_THREAD_ATTR_STACKADDR

The following functions are affected:

pthread_attr_getstack()

pthread_attr_getstackaddr()

pthread_attr_setstack()

pthread_attr_setstackaddr()

TSS - _POSIX_THREAD_ATTR_STACKSIZE - _SC_THREAD_ATTR_STACKSIZE

The following functions are affected:

pthread_attr_getstack()

pthread_attr_getstacksize()

pthread_attr_setstack()

pthread_attr_setstacksize()

TCT - _POSIX_THREAD_CPUTIME - _SC_THREAD_CPUTIME

The clockID CLOCK_THREAD_CPUTIME_ID is supported. This option implies the _POSIX_TIMERS option. The following functions are affected:

option. The following functions are affected:

pthread_getcpuclockid()

clock_getres()

clock_gettime()

clock_settime()

timer_create()

TPI - `_POSIX_THREAD_PRIO_INHERIT` - `_SC_THREAD_PRIO_INHERIT`

The following functions are affected:

`pthread_mutexattr_getprotocol()`

`pthread_mutexattr_setprotocol()`

TPP - `_POSIX_THREAD_PRIO_PROTECT` - `_SC_THREAD_PRIO_PROTECT`

The following functions are affected:

`pthread_mutex_getprioceiling()`

`pthread_mutex_setprioceiling()`

`pthread_mutexattr_getprioceiling()`

`pthread_mutexattr_getprotocol()`

`pthread_mutexattr_setprioceiling()`

`pthread_mutexattr_setprotocol()`

TPS - `_POSIX_THREAD_PRIORITY_SCHEDULING` - `_SC_THREAD_PRIORITY_SCHEDULING`

If this option is in effect, the different threads inside a process can run with different

priorities and/or different schedulers. The following functions are affected:

`pthread_attr_getinheritsched()`

`pthread_attr_getschedpolicy()`

`pthread_attr_getscope()`

`pthread_attr_setinheritsched()`

`pthread_attr_setschedpolicy()`

`pthread_attr_setscope()`

`pthread_getschedparam()`

`pthread_setschedparam()`

`pthread_setschedprio()`

TSH - `_POSIX_THREAD_PROCESS_SHARED` - `_SC_THREAD_PROCESS_SHARED`

The following functions are affected:

`pthread_barrierattr_getpshared()`

`pthread_barrierattr_setpshared()`

`pthread_condattr_getpshared()`

`pthread_condattr_setpshared()`

`pthread_mutexattr_getpshared()`

`pthread_mutexattr_setpshared()`

`pthread_rwlockattr_getpshared()`

pthread_rwlockattr_setpshared()

TSF - _POSIX_THREAD_SAFE_FUNCTIONS - _SC_THREAD_SAFE_FUNCTIONS

The following functions are affected:

readdir_r()

getgrgid_r()

getgrnam_r()

getpwnam_r()

getpwuid_r()

flockfile()

ftrylockfile()

funlockfile()

getc_unlocked()

getchar_unlocked()

putc_unlocked()

putchar_unlocked()

rand_r()

strerror_r()

strtok_r()

asctime_r()

ctime_r()

gmtime_r()

localtime_r()

TSP - _POSIX_THREAD_SPORADIC_SERVER - _SC_THREAD_SPORADIC_SERVER

This option implies the _POSIX_THREAD_PRIORITY_SCHEDULING option. The following functions are affected:

sched_getparam()

sched_setparam()

sched_setscheduler()

THR - _POSIX_THREADS - _SC_THREADS

Basic support for POSIX threads is available. The following functions are present:

pthread_atfork()

pthread_attr_destroy()

pthread_attr_getdetachstate()

pthread_attr_getschedparam()
pthread_attr_init()
pthread_attr_setdetachstate()
pthread_attr_setschedparam()
pthread_cancel()
pthread_cleanup_push()
pthread_cleanup_pop()
pthread_cond_broadcast()
pthread_cond_destroy()
pthread_cond_init()
pthread_cond_signal()
pthread_cond_timedwait()
pthread_cond_wait()
pthread_condattr_destroy()
pthread_condattr_init()
pthread_create()
pthread_detach()
pthread_equal()
pthread_exit()
pthread_getspecific()
pthread_join()
pthread_key_create()
pthread_key_delete()
pthread_mutex_destroy()
pthread_mutex_init()
pthread_mutex_lock()
pthread_mutex_trylock()
pthread_mutex_unlock()
pthread_mutexattr_destroy()
pthread_mutexattr_init()
pthread_once()
pthread_rwlock_destroy()
pthread_rwlock_init()

pthread_rwlock_rdlock()
pthread_rwlock_tryrdlock()
pthread_rwlock_trywrlock()
pthread_rwlock_unlock()
pthread_rwlock_wrlock()
pthread_rwlockattr_destroy()
pthread_rwlockattr_init()
pthread_self()
pthread_setcancelstate()
pthread_setcanceltype()
pthread_setspecific()
pthread_testcancel()

TMO - _POSIX_TIMEOUTS - _SC_TIMEOUTS

The following functions are present:

mq_timedreceive()
mq_timedsend()
pthread_mutex_timedlock()
pthread_rwlock_timedrdlock()
pthread_rwlock_timedwrlock()
sem_timedwait()
posix_trace_timedgetnext_event()

TMR - _POSIX_TIMERS - _SC_TIMERS

The following functions are present:

clock_getres()
clock_gettime()
clock_settime()
nanosleep()
timer_create()
timer_delete()
timer_gettime()
timer_getoverrun()
timer_settime()

TRC - _POSIX_TRACE - _SC_TRACE

POSIX tracing is available. The following functions are present:

posix_trace_attr_destroy()
posix_trace_attr_getclockres()
posix_trace_attr_getcreatetime()
posix_trace_attr_getgenversion()
posix_trace_attr_getmaxdatasize()
posix_trace_attr_getmaxsystemeventsizesize()
posix_trace_attr_getmaxusereventsizesize()
posix_trace_attr_getname()
posix_trace_attr_getstreamfullpolicy()
posix_trace_attr_getstreamsize()
posix_trace_attr_init()
posix_trace_attr_setmaxdatasize()
posix_trace_attr_setname()
posix_trace_attr_setstreamsize()
posix_trace_attr_setstreamfullpolicy()
posix_trace_clear()
posix_trace_create()
posix_trace_event()
posix_trace_eventid_equal()
posix_trace_eventid_get_name()
posix_trace_eventid_open()
posix_trace_eventtypelist_getnext_id()
posix_trace_eventtypelist_rewind()
posix_trace_flush()
posix_trace_get_attr()
posix_trace_get_status()
posix_trace_getnext_event()
posix_trace_shutdown()
posix_trace_start()
posix_trace_stop()
posix_trace_trygetnext_event()

This option implies the `_POSIX_TRACE` option. The following functions are present:

- `posix_trace_eventset_add()`
- `posix_trace_eventset_del()`
- `posix_trace_eventset_empty()`
- `posix_trace_eventset_fill()`
- `posix_trace_eventset_ismember()`
- `posix_trace_get_filter()`
- `posix_trace_set_filter()`
- `posix_trace_trid_eventid_open()`

TRI - `_POSIX_TRACE_INHERIT` - `_SC_TRACE_INHERIT`

Tracing children of the traced process is supported. This option implies the `_POSIX_TRACE` option. The following functions are present:

- `posix_trace_attr_getinherited()`
- `posix_trace_attr_setinherited()`

TRL - `_POSIX_TRACE_LOG` - `_SC_TRACE_LOG`

This option implies the `_POSIX_TRACE` option. The following functions are present:

- `posix_trace_attr_getlogfullpolicy()`
- `posix_trace_attr_getlogsize()`
- `posix_trace_attr_setlogfullpolicy()`
- `posix_trace_attr_setlogsize()`
- `posix_trace_close()`
- `posix_trace_create_withlog()`
- `posix_trace_open()`
- `posix_trace_rewind()`

TYM - `_POSIX_TYPED_MEMORY_OBJECTS` - `_SC_TYPED_MEMORY_OBJECT`

The following functions are present:

- `posix_mem_offset()`
- `posix_typed_mem_get_info()`
- `posix_typed_mem_open()`

--- - `_POSIX_VDISABLE`

Always present (probably 0). Value to set a changeable special control character to indicate that it is disabled.

XSI - _XOPEN_CRYPT - _SC_XOPEN_CRYPT

The following functions are present:

crypt()

encrypt()

setkey()

XSI - _XOPEN_REALTIME - _SC_XOPEN_REALTIME

This option implies the following options:

_POSIX_ASYNCIO==200112L

_POSIX_FSYNC

_POSIX_MAPPED_FILES

_POSIX_MEMLOCK==200112L

_POSIX_MEMLOCK_RANGE==200112L

_POSIX_MEMORY_PROTECTION

_POSIX_MESSAGE_PASSING==200112L

_POSIX_PRIORITIZED_IO

_POSIX_PRIORITY_SCHEDULING==200112L

_POSIX_REALTIME_SIGNALS==200112L

_POSIX_SEMAPHORES==200112L

_POSIX_SHARED_MEMORY_OBJECTS==200112L

_POSIX_SYNCHRONIZED_IO==200112L

_POSIX_TIMERS==200112L

ADV - --- - ---

The Advanced Realtime option group implies that the following options are all defined to 200112L:

_POSIX_ADVISORY_INFO

_POSIX_CLOCK_SELECTION

(implies _POSIX_TIMERS)

_POSIX_CPUTIME

(implies _POSIX_TIMERS)

_POSIX_MONOTONIC_CLOCK

(implies _POSIX_TIMERS)

_POSIX_SPAWN

_POSIX_SPORADIC_SERVER

(implies _POSIX_PRIORITY_SCHEDULING)

_POSIX_TIMEOUTS

_POSIX_TYPED_MEMORY_OBJECTS

XSI - _XOPEN_REALTIME_THREADS - _SC_XOPEN_REALTIME_THREADS

This option implies that the following options are all defined to 200112L:

_POSIX_THREAD_PRIO_INHERIT

_POSIX_THREAD_PRIO_PROTECT

_POSIX_THREAD_PRIORITY_SCHEDULING

ADVANCED REALTIME THREADS - --- - ---

This option implies that the following options are all defined to 200112L:

_POSIX_BARRIERS

(implies _POSIX_THREADS, _POSIX_THREAD_SAFE_FUNCTIONS)

_POSIX_SPIN_LOCKS

(implies _POSIX_THREADS, _POSIX_THREAD_SAFE_FUNCTIONS)

_POSIX_THREAD_CPUTIME

(implies _POSIX_TIMERS)

_POSIX_THREAD_SPORADIC_SERVER

(implies _POSIX_THREAD_PRIORITY_SCHEDULING)

TRACING - --- - ---

This option implies that the following options are all defined to 200112L:

_POSIX_TRACE

_POSIX_TRACE_EVENT_FILTER

_POSIX_TRACE_LOG

_POSIX_TRACE_INHERIT

STREAMS - _XOPEN_STREAMS - _SC_XOPEN_STREAMS

The following functions are present:

fattach()

fdetach()

getmsg()

getpmsg()

ioctl()

isastream()

putmsg()

putpmsg()

XSI - _XOPEN_LEGACY - _SC_XOPEN_LEGACY

Functions included in the legacy option group were previously mandatory, but are now optional

in this version. The following functions are present:

bcmp()

bcopy()

bzero()

ecvt()

fcvt()

ftime()

gcvt()

getcwd()

index()

mktemp()

rindex()

utimes()

wcswcs()

XSI - _XOPEN_UNIX - _SC_XOPEN_UNIX

The following functions are present:

mmap()

munmap()

msync()

This option implies the following options:

_POSIX_FSYNC

_POSIX_MAPPED_FILES

_POSIX_MEMORY_PROTECTION

_POSIX_THREAD_ATTR_STACKADDR

_POSIX_THREAD_ATTR_STACKSIZE

_POSIX_THREAD_PROCESS_SHARED

_POSIX_THREAD_SAFE_FUNCTIONS

_POSIX_THREADS

This option may imply the following options from the XSI option groups:

Encryption (_XOPEN_CRYPT)

Realtime (`_XOPEN_REALTIME`)

Advanced Realtime (ADB)

Realtime Threads (`_XOPEN_REALTIME_THREADS`)

Advanced Realtime Threads (ADVANCED REALTIME THREADS)

Tracing (TRACING)

XSI Streams (STREAMS)

Legacy (`_XOPEN_LEGACY`)

SEE ALSO

`sysconf(3)`, `standards(7)`

COLOPHON

This page is part of release 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

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POSIXOPTIONS(7)