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 following 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_REGEXP - _SC_REGEXP
If this option is in effect (as it always is under POSIX.1-2001), then POSIX regular expressions 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_spawnp()

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:

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:

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_getmaxsystemeventsize()
posix_trace_attr_getmaxusereventsize()
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()

TEF - _POSIX_TRACE_EVENT_FILTER - _SC_TRACE_EVENT_FILTER
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.

X/OPEN SYSTEM INTERFACE EXTENSIONS

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_ASYNCHRONOUS_IO==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 5.02 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/.