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## **Red Hat Enterprise Linux Release 9.2 Manual Pages on 'pthread\_rwlockattr\_setkind\_np.3' command**

**`$ man pthread_rwlockattr_setkind_np.3`**

PTHREAD\_RWLOCKATTR\_SETKIND\_Library Functions MPTHREAD\_RWLOCKATTR\_SETKIND\_NP(3)

### NAME

pthread\_rwlockattr\_setkind\_np, pthread\_rwlockattr\_getkind\_np - set/get the read-write lock kind of the thread read-write lock attribute object

### SYNOPSIS

```
#include <pthread.h>

int pthread_rwlockattr_setkind_np(pthread_rwlockattr_t *attr,
                                  int pref);

int pthread_rwlockattr_getkind_np(const pthread_rwlockattr_t *attr,
                                  int *pref);
```

Compile and link with `-pthread`.

Feature Test Macro Requirements for glibc (see `feature_test_macros(7)`):

```
pthread_rwlockattr_setkind_np(), pthread_rwlockattr_getkind_np():
    _XOPEN_SOURCE >= 500 || _POSIX_C_SOURCE >= 200809L
```

### DESCRIPTION

The `pthread_rwlockattr_setkind_np()` function sets the "lock kind" attribute of the read-write lock attribute object referred to by `attr` to the value specified in `pref`. The argument `pref` may be set to one of the following:

`PTHREAD_RWLOCK_PREFER_READER_NP`

This is the default. A thread may hold multiple read locks; that is, read locks are recursive. According to The Single Unix Specification, the behavior is unspecified when a reader tries

to place a lock, and there is no write lock but writers are waiting. Giving preference to the reader, as is set by `PTHREAD_RWLOCK_PREFER_READER_NP`, implies that the reader will receive the requested lock, even if a writer is waiting. As long as there are readers, the writer will be starved.

#### `PTHREAD_RWLOCK_PREFER_WRITER_NP`

This is intended as the write lock analog of `PTHREAD_RWLOCK_PREFER_READER_NP`. This is ignored by glibc because the POSIX requirement to support recursive read locks would cause this option to create trivial deadlocks; instead use `PTHREAD_RWLOCK_PREFER_WRITER_NONRECURSIVE_NP` which ensures the application developer will not take recursive read locks thus avoiding deadlocks.

#### `PTHREAD_RWLOCK_PREFER_WRITER_NONRECURSIVE_NP`

Setting the lock kind to this avoids writer starvation as long as any read locking is not done in a recursive fashion.

The `pthread_rwlockattr_getkind_np()` function returns the value of the lock kind attribute of the read-write lock attribute object referred to by `attr` in the pointer `pref`.

#### RETURN VALUE

On success, these functions return 0. Given valid pointer arguments, `pthread_rwlockattr_getkind_np()` always succeeds. On error, `pthread_rwlockattr_setkind_np()` returns a nonzero error number.

#### ERRORS

`EINVAL` `pref` specifies an unsupported value.

#### VERSIONS

The `pthread_rwlockattr_getkind_np()` and `pthread_rwlockattr_setkind_np()` functions first appeared in glibc 2.1.

#### CONFORMING TO

These functions are non-standard GNU extensions; hence the suffix "`_np`" (nonportable) in the names.

#### SEE ALSO

`pthreads(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/>.

Linux Programmer's Manual      2020-08-13 PTHREAD\_RWLOCKATTR\_SETKIND\_NP(3)