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

$ man pthread_attr_getscope.3

PTHREAD_ATTR_SETSCOPE(3)   Linux Programmer's Manual PTHREAD_ATTR_SETSCOPE(3)

NAME

    pthread_attr_setscope, pthread_attr_getscope - set/get contention scope

    attribute in thread attributes object

SYNOPSIS

    #include <pthread.h>

    int pthread_attr_setscope(pthread_attr_t *attr, int scope);

    int pthread_attr_getscope(const pthread_attr_t *attr, int *scope);

    Compile and link with -pthread.

DESCRIPTION

    The pthread_attr_setscope() function sets the contention scope attri?

    bute of the thread attributes object referred to by attr to the value

    specified in scope. The contention scope attribute defines the set of

    threads against which a thread competes for resources such as the CPU.

    POSIX.1 specifies two possible values for scope:

    PTHREAD_SCOPE_SYSTEM

        The thread competes for resources with all other threads in all

        processes on the system that are in the same scheduling alloca?

        tion domain (a group of one or more processors).

        PTHREAD_SCOPE_SYSTEM threads are scheduled relative to one an?

        other according to their scheduling policy and priority.

    PTHREAD_SCOPE_PROCESS

        The thread competes for resources with all other threads in the

same process that were also created with the PTHREAD_SCOPE_PROCESS contention scope. PTHREAD_SCOPE_PROCESS threads are scheduled relative to other threads in the process according to their scheduling policy and priority. POSIX.1 leaves it unspecified how these threads contend with other threads in other process on the system or with other threads in the same process that were created with the PTHREAD_SCOPE_SYSTEM contention scope.

POSIX.1 requires that an implementation support at least one of these contention scopes. Linux supports PTHREAD_SCOPE_SYSTEM, but not PTHREAD_SCOPE_PROCESS.

On systems that support multiple contention scopes, then, in order for the parameter setting made by pthread_attr_setscope() to have effect when calling pthread_create(3), the caller must use pthread_attr_set‐ inheritsched(3) to set the inherit-scheduler attribute of the at‐ tributes object attr to PTHREAD_EXPLICIT_SCHED.

The pthread_attr_getscope() function returns the contention scope at‐ tribute of the thread attributes object referred to by attr in the buf‐ fer pointed to by scope.

RETURN VALUE

On success, these functions return 0; on error, they return a nonzero error number.

ERRORS

pthread_attr_setscope() can fail with the following errors:

EINVAL An invalid value was specified in scope.

ENOTSUP

scope specified the value PTHREAD_SCOPE_PROCESS, which is not supported on Linux.

ATTRIBUTES

For an explanation of the terms used in this section, see at‐ tributes(7).

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?Interface   ? Attribute   ? Value   ?

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??????????????????????????????????????????????????????
?pthread_attr_setscope(), ? Thread safety ? MT-Safe ?
?pthread_attr_getscope()  ?            ?       ?
??????????????????????????????????????????????????????
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CONFORMING TO

POSIX.1-2001, POSIX.1-2008.

NOTES

The PTHREAD_SCOPE_SYSTEM contention scope typically indicates that a
user-space thread is bound directly to a single kernel-scheduling en?
tity. This is the case on Linux for the obsolete LinuxThreads imple?
mentation and the modern NPTL implementation, which are both 1:1
threading implementations.

POSIX.1 specifies that the default contention scope is implementation-
defined.

SEE ALSO

pthread_attr_init(3), pthread_attr_setaffinity_np(3),
pthread_attr_setinheritsched(3), pthread_attr_setschedparam(3),
pthread_attr_setschedpolicy(3), pthread_create(3), pthreads(7)

COLOPHON

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