Subject: Changeing to recursive critical sections... (?)
Posted by mirek on Sat, 10 Mar 2007 12:59:03 GMT
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Well, I have wasted 4 days finding a bug that ended as another Linux mutex deadlock case. To explain, default Linux version of mutex (unlike Win32 critical section) does not allow single thread to lock the same mutex twice. This often leads to quite tiresome problems and hard to spot bugs.

Now I have found there exists "PTHREAD_MUTEX_RECURSIVE" (non-default) attribute that should avoid this trouble. Anyway, support on various platforms does not seem to be consistent, at least it was not in the past.

Therefore, before going there, any information about platform specific issues is highly appreciated.

Mirek

Subject: Re: Changeing to recursive critical sections... (?)
Posted by masu on Sat, 10 Mar 2007 20:20:13 GMT
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As expected, it is also defined on FreeBSD in pthread header:

```
/*
 * Mutex types (Single UNIX Specification, Version 2, 1997).
 *
 * Note that a mutex attribute with one of the following types:
 *
 *      PTHREAD_MUTEX_NORMAL
 *      PTHREAD_MUTEX_RECURSIVE
 *      MUTEX_TYPE_FAST (deprecated)
 *      MUTEX_TYPE_COUNTING_FAST (deprecated)
 *
 * will deviate from POSIX specified semantics.
 */
enum pthread_mutextype {
        PTHREAD_MUTEX_ERRORCHECK        = 1,    /* Default POSIX mutex */
        PTHREAD_MUTEX_RECURSIVE         = 2,    /* Recursive mutex */
        PTHREAD_MUTEX_NORMAL            = 3,    /* No error checking */
        MUTEX_TYPE_MAX
};

#define PTHREAD_MUTEX_DEFAULT           PTHREAD_MUTEX_ERRORCHECK
#define MUTEX_TYPE_FAST                 PTHREAD_MUTEX_NORMAL
#define MUTEX_TYPE_COUNTING_FAST        PTHREAD_MUTEX_RECURSIVE
```

Matthias