

# A helper template function to wait for a Win32 condition variable in a loop

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Win32 condition variables suffer from the problem of spurious wake-ups, and you will usually wait on a condition variable in a loop. It's easier than the case of `WaitOnAddress` because you hold a lock while checking the condition, so you don't have to worry about race conditions against other threads. (The idea is that anybody who wants to cause a change to the condition needs to acquire the same lock. Therefore holding the lock prevents the condition from changing.)

The C++ standard library contains an overload to the `std::condition_variable::wait` method which takes a predicate. If the predicate returns `false`, then the `wait` will loop back and wait some more.

Let's write that same helper function for Win32 condition variables.

```

template<typename TLambda>
void SleepConditionVariableCSUntil(
    CONDITION_VARIABLE* conditionVariable,
    CRITICAL_SECTION*   criticalSection,
    TLambda&&           is_okay)
{
    while (!is_okay()) {
        SleepConditionVariableCS(conditionVariable, criticalSection, INFINITE);
    }
}

```

```

template<typename TLambda>
void SleepConditionVariableSharedSRWUntil(
    CONDITION_VARIABLE* conditionVariable,
    SRWLOCK*           srwLock,
    TLambda&&         is_okay)
{
    while (!is_okay()) {
        SleepConditionVariableSRW(conditionVariable, srwLock, INFINITE,
                                   CONDITION_VARIABLE_LOCKMODE_SHARED);
    }
}

```

```

template<typename TLambda>
void SleepConditionVariableExclusiveSRWUntil(
    CONDITION_VARIABLE* conditionVariable,
    SRWLOCK*           srwLock,
    TLambda&&         is_okay)
{
    while (!is_okay()) {
        SleepConditionVariableSRW(conditionVariable, srwLock, INFINITE, 0);
    }
}

```

I will admit that these helpers aren't as useful as the one for [WaitOnAddress](#) because the loop is very straightforward. It may not be much of a benefit over just writing the loop out manually.

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