

# Creating an automatic-reset event from WaitOnAddress

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Last time, we created a manual-reset event from `WaitOnAddress`. Today, it's an automatic-reset event.

```

struct ALT_AEVENT
{
    LONG State;
};

void InitializeAltAutoEvent(ALT_AEVENT* Event,
                           bool InitialState)
{
    Semaphore->State = InitialState;
}

void SetAltAutoEvent(ALT_AEVENT* Event)
{
    if (InterlockedCompareExchange(&Event->State,
                                   true, false) == false) {
        WakeByAddressSingle(&Event->State);
    }
}

void ResetAltAutoEvent(ALT_AEVENT* Event)
{
    InterlockedCompareExchange(&Event->State,
                              false, true);
}

void WaitForAltAutoEvent(ALT_AEVENT* Event)
{
    while (!InterlockedCompareExchange(&Event->State,
                                       false, true)) {
        LONG Waiting = 0;
        WaitOnAddress(&Event->State,
                    &Waiting,
                    sizeof(Waiting),
                    INFINITE);
    }
}

```

Most of this code is the same as with manual-reset events. One difference is that when setting the event, we use `WakeByAddressSingle` because signaling an auto-reset event releases at most one thread.

The interesting change is in the code that waits. Instead of merely checking the state, we try to transition it from `true` to `false`, which simultaneously checks and claims the token.

Okay, next time, we're going to put together what we've been learning this week to solve an actual problem.

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