

The Countdown Event



# Revisiting AutoResetEvent



thread inserts ticket  
to let 1 thread through

`Set()`

threads line up to wait

`WaitOne()`



# Revisiting ManualResetEvent

thread inserts ticket  
to manually close gate

`Reset()`



thread inserts ticket  
to let all threads through,  
gate remains open

`Set()`

threads line up to wait

`WaitOne()`



# Desired behaviour

thread inserts ticket  
to manually close gate



3 threads insert a  
ticket; gate opens when  
third ticket is inserted  
and remains open

threads line up to wait



# CountdownEvent

thread inserts ticket  
to manually close gate

`Reset()`



3 threads insert a  
ticket; gate opens when  
third ticket is inserted  
and remains open

`Signal()`

threads line up to wait

`Wait()`



# CountdownEvent

thread inserts ticket  
to manually close gate

`Reset()`

increase ticket count

`AddCount()`

`TryAddCount()`



3 threads insert a  
ticket; gate opens when  
third ticket is inserted  
and remains open

`Signal()`

threads line up to wait

`Wait()`



# Three different reset events

- **AutoResetEvent**: 1 thread signals another thread to do something.  
Example: signal to consumers that new work has arrived.
- **ManualResetEvent**: 1 thread signals many threads to do something.  
Example: suspend and resume all consumers
- **CountdownEvent**: many threads signal 1 thread to do something.  
Example: wait until all consumers have quit