## <<abstract>> SleepingStopWatch

<constructor>> #SleepingStopwatch()

#readMicros(): long

#sleepMicrosUniterruptibly(micros:long):void

<constructor >> ~SmoothWarmingUp(stopwatch : SleepingStopwatch, warmupPeriod : long, timeUnit : TimeUnit, coldFactor : double)

<<final>> SmoothWarmingUp

~doSetRate(permitsPerSecond : double, stableIntervalMicros : double) : void
~storedPermitsToWaitTime(storedPermits : double, permitsToTake : double) : long

-permitsToTime(permits : double) : double

~coolDownIntervalMicros(): double

-slope : double

-threshholdPermits: double

-coldFactor : double

```
<<abstract>> RateLimiter
-STOPWATCH : SleepingStopwatch
-mutexDoNotUseDirectly : Object
+create(permitsPerSecond : double) : RateLimiter
~create(permitsPerSecond : double, stopWatch : SleepingStopwatch) : RateLimiter
+create(permitsPerSecond : double, warumpPeriod : Duration) : RateLimiter
+create(permitsPerSecond : double, warumpPeriod : Duration, unit : TimeUnit) : RateLimiter
~create(permitsPerSecond : double, warumpPeriod : long, unit : TimeUnit, coldFactor : double, stopwatch : SleepingWatch) : RateLimiter
-mutex() : Object
<constructor>> +RateLimiter(stopwatch : SleepingStopwatch)
<<final>> +setRate(permitsPerSecond : double) : void
<abstract>> ~doSetRate(permitsPerSecond : double, nowMicros : long) void
<<final>> +getRate() : double
<<abstract>> ~doGetRate() : double
+aquire() : double
+aquire(permits : int) : double
<<final>> ~reserve(permits : int) : long
+tryAquire(timeout : Duration) : boolean
+tryAquire(timeout : long, unit : TimeUnit) : boolean
+tryAquire(permits : int) : boolean
+tryAquire(): boolean
+tryAquire(permits : int, timeout : Duration) : boolean
+tryAquire(permits : int, timeout : long, unit : TimeUnit) : boolean
-canAcquire(nowMicros : long, timeoutMicros : long) : boolean
<<final>> ~reserveAndGetWaitLength(permits : int, nowMicros : long) : long
<<abstract>> ~queryEarliestAvailable(nowMicros : long) : long
<<abstract>> ~queryEarliestAvailable(permits : int, nowMicros : long) : long
-checkPermits(permits : int) : void
```

## </abstract>> SmoothRateLimiter <storedPermits : double ~maxPermits : double ~stableIntervalMicros : double -nextFreeTicketMicros : long </constructor>> -SmoothRateLimiter(stopwatch : SleepingStopwatch) <final>> ~doSetRate(permitsPerSecond : double, nowMicros : long) : void </abstract>> ~doSetRate(permitsPerSecond : double, stableIntervalMicros : double) : void </final>> ~doGetRate() : double </final>> ~queryEarliestAvailable(nowMicros : long) : long </final>> ~reserveEarliestAvailable(requiredPermits : int, nowMicros : long) : long </abstract>> ~storedPermitsToWaitTime(storedPermits : double, permitsToTake : double) : long </abstract>> ~coolDownIntervalMicros() : double ~resync(nowMicros : long) : void

## <final>> SmoothBursty <<final>> maxBurstSeconds : double </constructor>> ~SmoothBursty(stopwatch : SleepingStopwatch, maxBurstSeconds : double) ~doSetRate(permitsPerSecond : double, stableIntervalMicros : double) : void ~storedPermitsToWaitTime(storedPermits : double, permitsToTake : double) : long ~coolDownIntervalMicros() : double