| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Timer.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PREV CLASS   [**NEXT CLASS**](http://docs.google.com/javax/management/timer/TimerMBean.html) | [**FRAMES**](http://docs.google.com/index.html?javax/management/timer/Timer.html)    [**NO FRAMES**](http://docs.google.com/Timer.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#35nkun2) | [METHOD](#44sinio) |

## **javax.management.timer**

Class Timer

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 [javax.management.NotificationBroadcasterSupport](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html)  
 **javax.management.timer.Timer**

**All Implemented Interfaces:** [MBeanRegistration](http://docs.google.com/javax/management/MBeanRegistration.html), [NotificationBroadcaster](http://docs.google.com/javax/management/NotificationBroadcaster.html), [NotificationEmitter](http://docs.google.com/javax/management/NotificationEmitter.html), [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html)

public class **Timer**extends [NotificationBroadcasterSupport](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html)implements [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html), [MBeanRegistration](http://docs.google.com/javax/management/MBeanRegistration.html)

Provides the implementation of the timer MBean. The timer MBean sends out an alarm at a specified time that wakes up all the listeners registered to receive timer notifications.

This class manages a list of dated timer notifications. A method allows users to add/remove as many notifications as required. When a timer notification is emitted by the timer and becomes obsolete, it is automatically removed from the list of timer notifications.

Additional timer notifications can be added into regularly repeating notifications.

Note:

1. When sending timer notifications, the timer updates the notification sequence number irrespective of the notification type.
2. The timer service relies on the system date of the host where the Timer class is loaded. Listeners may receive untimely notifications if their host has a different system date. To avoid such problems, synchronize the system date of all host machines where timing is needed.
3. The default behavior for periodic notifications is *fixed-delay execution*, as specified in [Timer](http://docs.google.com/java/util/Timer.html). In order to use *fixed-rate execution*, use the overloaded [addNotification(String, String, Object, Date, long, long, boolean)](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long,%20boolean)) method.
4. Notification listeners are potentially all executed in the same thread. Therefore, they should execute rapidly to avoid holding up other listeners or perturbing the regularity of fixed-delay executions. See [NotificationBroadcasterSupport](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html).

**Since:** 1.5

| **Field Summary** | |
| --- | --- |
| static long | [**ONE\_DAY**](http://docs.google.com/javax/management/timer/Timer.html#ONE_DAY)            Number of milliseconds in one day. |
| static long | [**ONE\_HOUR**](http://docs.google.com/javax/management/timer/Timer.html#ONE_HOUR)            Number of milliseconds in one hour. |
| static long | [**ONE\_MINUTE**](http://docs.google.com/javax/management/timer/Timer.html#ONE_MINUTE)            Number of milliseconds in one minute. |
| static long | [**ONE\_SECOND**](http://docs.google.com/javax/management/timer/Timer.html#ONE_SECOND)            Number of milliseconds in one second. |
| static long | [**ONE\_WEEK**](http://docs.google.com/javax/management/timer/Timer.html#ONE_WEEK)            Number of milliseconds in one week. |

| **Constructor Summary** | |
| --- | --- |
| [**Timer**](http://docs.google.com/javax/management/timer/Timer.html#Timer())()            Default constructor. |

| **Method Summary** | |
| --- | --- |
| [Integer](http://docs.google.com/java/lang/Integer.html) | [**addNotification**](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date))([String](http://docs.google.com/java/lang/String.html) type, [String](http://docs.google.com/java/lang/String.html) message, [Object](http://docs.google.com/java/lang/Object.html) userData, [Date](http://docs.google.com/java/util/Date.html) date)            Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date and a null period and number of occurrences. |
| [Integer](http://docs.google.com/java/lang/Integer.html) | [**addNotification**](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long))([String](http://docs.google.com/java/lang/String.html) type, [String](http://docs.google.com/java/lang/String.html) message, [Object](http://docs.google.com/java/lang/Object.html) userData, [Date](http://docs.google.com/java/util/Date.html) date, long period)            Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date and period and a null number of occurrences. |
| [Integer](http://docs.google.com/java/lang/Integer.html) | [**addNotification**](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long))([String](http://docs.google.com/java/lang/String.html) type, [String](http://docs.google.com/java/lang/String.html) message, [Object](http://docs.google.com/java/lang/Object.html) userData, [Date](http://docs.google.com/java/util/Date.html) date, long period, long nbOccurences)            Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date, period and number of occurrences. |
| [Integer](http://docs.google.com/java/lang/Integer.html) | [**addNotification**](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long,%20boolean))([String](http://docs.google.com/java/lang/String.html) type, [String](http://docs.google.com/java/lang/String.html) message, [Object](http://docs.google.com/java/lang/Object.html) userData, [Date](http://docs.google.com/java/util/Date.html) date, long period, long nbOccurences, boolean fixedRate)            Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date, period and number of occurrences. |
| [Vector](http://docs.google.com/java/util/Vector.html)<[Integer](http://docs.google.com/java/lang/Integer.html)> | [**getAllNotificationIDs**](http://docs.google.com/javax/management/timer/Timer.html#getAllNotificationIDs())()            Gets all timer notification identifiers registered into the list of notifications. |
| [Date](http://docs.google.com/java/util/Date.html) | [**getDate**](http://docs.google.com/javax/management/timer/Timer.html#getDate(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets a copy of the date associated to a timer notification. |
| [Boolean](http://docs.google.com/java/lang/Boolean.html) | [**getFixedRate**](http://docs.google.com/javax/management/timer/Timer.html#getFixedRate(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets a copy of the flag indicating whether a periodic notification is executed at *fixed-delay* or at *fixed-rate*. |
| int | [**getNbNotifications**](http://docs.google.com/javax/management/timer/Timer.html#getNbNotifications())()            Gets the number of timer notifications registered into the list of notifications. |
| [Long](http://docs.google.com/java/lang/Long.html) | [**getNbOccurences**](http://docs.google.com/javax/management/timer/Timer.html#getNbOccurences(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets a copy of the remaining number of occurrences associated to a timer notification. |
| [Vector](http://docs.google.com/java/util/Vector.html)<[Integer](http://docs.google.com/java/lang/Integer.html)> | [**getNotificationIDs**](http://docs.google.com/javax/management/timer/Timer.html#getNotificationIDs(java.lang.String))([String](http://docs.google.com/java/lang/String.html) type)            Gets all the identifiers of timer notifications corresponding to the specified type. |
| [MBeanNotificationInfo](http://docs.google.com/javax/management/MBeanNotificationInfo.html)[] | [**getNotificationInfo**](http://docs.google.com/javax/management/timer/Timer.html#getNotificationInfo())()            Returns an array indicating, for each notification this MBean may send, the name of the Java class of the notification and the notification type. |
| [String](http://docs.google.com/java/lang/String.html) | [**getNotificationMessage**](http://docs.google.com/javax/management/timer/Timer.html#getNotificationMessage(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets the timer notification detailed message corresponding to the specified identifier. |
| [String](http://docs.google.com/java/lang/String.html) | [**getNotificationType**](http://docs.google.com/javax/management/timer/Timer.html#getNotificationType(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets the timer notification type corresponding to the specified identifier. |
| [Object](http://docs.google.com/java/lang/Object.html) | [**getNotificationUserData**](http://docs.google.com/javax/management/timer/Timer.html#getNotificationUserData(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets the timer notification user data object corresponding to the specified identifier. |
| [Long](http://docs.google.com/java/lang/Long.html) | [**getPeriod**](http://docs.google.com/javax/management/timer/Timer.html#getPeriod(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Gets a copy of the period (in milliseconds) associated to a timer notification. |
| boolean | [**getSendPastNotifications**](http://docs.google.com/javax/management/timer/Timer.html#getSendPastNotifications())()            Gets the flag indicating whether or not the timer sends past notifications. |
| boolean | [**isActive**](http://docs.google.com/javax/management/timer/Timer.html#isActive())()            Tests whether the timer MBean is active. |
| boolean | [**isEmpty**](http://docs.google.com/javax/management/timer/Timer.html#isEmpty())()            Tests whether the list of timer notifications is empty. |
| void | [**postDeregister**](http://docs.google.com/javax/management/timer/Timer.html#postDeregister())()            Allows the timer MBean to perform any operations needed after having been unregistered by the MBean server. |
| void | [**postRegister**](http://docs.google.com/javax/management/timer/Timer.html#postRegister(java.lang.Boolean))([Boolean](http://docs.google.com/java/lang/Boolean.html) registrationDone)            Allows the timer MBean to perform any operations needed after having been registered in the MBean server or after the registration has failed. |
| void | [**preDeregister**](http://docs.google.com/javax/management/timer/Timer.html#preDeregister())()            Allows the timer MBean to perform any operations it needs before being unregistered by the MBean server. |
| [ObjectName](http://docs.google.com/javax/management/ObjectName.html) | [**preRegister**](http://docs.google.com/javax/management/timer/Timer.html#preRegister(javax.management.MBeanServer,%20javax.management.ObjectName))([MBeanServer](http://docs.google.com/javax/management/MBeanServer.html) server, [ObjectName](http://docs.google.com/javax/management/ObjectName.html) name)            Allows the timer MBean to perform any operations it needs before being registered in the MBean server. |
| void | [**removeAllNotifications**](http://docs.google.com/javax/management/timer/Timer.html#removeAllNotifications())()            Removes all the timer notifications from the list of notifications and resets the counter used to update the timer notification identifiers. |
| void | [**removeNotification**](http://docs.google.com/javax/management/timer/Timer.html#removeNotification(java.lang.Integer))([Integer](http://docs.google.com/java/lang/Integer.html) id)            Removes the timer notification corresponding to the specified identifier from the list of notifications. |
| void | [**removeNotifications**](http://docs.google.com/javax/management/timer/Timer.html#removeNotifications(java.lang.String))([String](http://docs.google.com/java/lang/String.html) type)            Removes all the timer notifications corresponding to the specified type from the list of notifications. |
| void | [**setSendPastNotifications**](http://docs.google.com/javax/management/timer/Timer.html#setSendPastNotifications(boolean))(boolean value)            Sets the flag indicating whether the timer sends past notifications or not. |
| void | [**start**](http://docs.google.com/javax/management/timer/Timer.html#start())()            Starts the timer. |
| void | [**stop**](http://docs.google.com/javax/management/timer/Timer.html#stop())()            Stops the timer. |

| **Methods inherited from class javax.management.**[**NotificationBroadcasterSupport**](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html) |
| --- |
| [addNotificationListener](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html#addNotificationListener(javax.management.NotificationListener,%20javax.management.NotificationFilter,%20java.lang.Object)), [handleNotification](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html#handleNotification(javax.management.NotificationListener,%20javax.management.Notification,%20java.lang.Object)), [removeNotificationListener](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html#removeNotificationListener(javax.management.NotificationListener)), [removeNotificationListener](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html#removeNotificationListener(javax.management.NotificationListener,%20javax.management.NotificationFilter,%20java.lang.Object)), [sendNotification](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html#sendNotification(javax.management.Notification)) |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [hashCode](http://docs.google.com/java/lang/Object.html#hashCode()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [toString](http://docs.google.com/java/lang/Object.html#toString()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Field Detail** |
| --- |

### ONE\_SECOND

public static final long **ONE\_SECOND**

Number of milliseconds in one second. Useful constant for the addNotification method.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#javax.management.timer.Timer.ONE_SECOND)

### ONE\_MINUTE

public static final long **ONE\_MINUTE**

Number of milliseconds in one minute. Useful constant for the addNotification method.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#javax.management.timer.Timer.ONE_MINUTE)

### ONE\_HOUR

public static final long **ONE\_HOUR**

Number of milliseconds in one hour. Useful constant for the addNotification method.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#javax.management.timer.Timer.ONE_HOUR)

### ONE\_DAY

public static final long **ONE\_DAY**

Number of milliseconds in one day. Useful constant for the addNotification method.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#javax.management.timer.Timer.ONE_DAY)

### ONE\_WEEK

public static final long **ONE\_WEEK**

Number of milliseconds in one week. Useful constant for the addNotification method.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#javax.management.timer.Timer.ONE_WEEK)

| **Constructor Detail** |
| --- |

### Timer

public **Timer**()

Default constructor.

| **Method Detail** |
| --- |

### preRegister

public [ObjectName](http://docs.google.com/javax/management/ObjectName.html) **preRegister**([MBeanServer](http://docs.google.com/javax/management/MBeanServer.html) server,  
 [ObjectName](http://docs.google.com/javax/management/ObjectName.html) name)  
 throws [Exception](http://docs.google.com/java/lang/Exception.html)

Allows the timer MBean to perform any operations it needs before being registered in the MBean server.

Not used in this context.

**Specified by:**[preRegister](http://docs.google.com/javax/management/MBeanRegistration.html#preRegister(javax.management.MBeanServer,%20javax.management.ObjectName)) in interface [MBeanRegistration](http://docs.google.com/javax/management/MBeanRegistration.html) **Parameters:**server - The MBean server in which the timer MBean will be registered.name - The object name of the timer MBean. **Returns:**The name of the timer MBean registered. **Throws:** [Exception](http://docs.google.com/java/lang/Exception.html)

### postRegister

public void **postRegister**([Boolean](http://docs.google.com/java/lang/Boolean.html) registrationDone)

Allows the timer MBean to perform any operations needed after having been registered in the MBean server or after the registration has failed.

Not used in this context.

**Specified by:**[postRegister](http://docs.google.com/javax/management/MBeanRegistration.html#postRegister(java.lang.Boolean)) in interface [MBeanRegistration](http://docs.google.com/javax/management/MBeanRegistration.html) **Parameters:**registrationDone - Indicates whether or not the MBean has been successfully registered in the MBean server. The value false means that the registration phase has failed.

### preDeregister

public void **preDeregister**()  
 throws [Exception](http://docs.google.com/java/lang/Exception.html)

Allows the timer MBean to perform any operations it needs before being unregistered by the MBean server.

Stops the timer.

**Specified by:**[preDeregister](http://docs.google.com/javax/management/MBeanRegistration.html#preDeregister()) in interface [MBeanRegistration](http://docs.google.com/javax/management/MBeanRegistration.html) **Throws:** [Exception](http://docs.google.com/java/lang/Exception.html)

### postDeregister

public void **postDeregister**()

Allows the timer MBean to perform any operations needed after having been unregistered by the MBean server.

Not used in this context.

**Specified by:**[postDeregister](http://docs.google.com/javax/management/MBeanRegistration.html#postDeregister()) in interface [MBeanRegistration](http://docs.google.com/javax/management/MBeanRegistration.html)

### getNotificationInfo

public [MBeanNotificationInfo](http://docs.google.com/javax/management/MBeanNotificationInfo.html)[] **getNotificationInfo**()

**Description copied from interface:** [**NotificationBroadcaster**](http://docs.google.com/javax/management/NotificationBroadcaster.html#getNotificationInfo())

Returns an array indicating, for each notification this MBean may send, the name of the Java class of the notification and the notification type.

It is not illegal for the MBean to send notifications not described in this array. However, some clients of the MBean server may depend on the array being complete for their correct functioning.

**Specified by:**[getNotificationInfo](http://docs.google.com/javax/management/NotificationBroadcaster.html#getNotificationInfo()) in interface [NotificationBroadcaster](http://docs.google.com/javax/management/NotificationBroadcaster.html)**Overrides:**[getNotificationInfo](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html#getNotificationInfo()) in class [NotificationBroadcasterSupport](http://docs.google.com/javax/management/NotificationBroadcasterSupport.html) **Returns:**the array of possible notifications.

### start

public void **start**()

Starts the timer.

If there is one or more timer notifications before the time in the list of notifications, the notification is sent according to the sendPastNotifications flag and then, updated according to its period and remaining number of occurrences. If the timer notification date remains earlier than the current date, this notification is just removed from the list of notifications.

**Specified by:**[start](http://docs.google.com/javax/management/timer/TimerMBean.html#start()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html)

### stop

public void **stop**()

Stops the timer.

**Specified by:**[stop](http://docs.google.com/javax/management/timer/TimerMBean.html#stop()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html)

### addNotification

public [Integer](http://docs.google.com/java/lang/Integer.html) **addNotification**([String](http://docs.google.com/java/lang/String.html) type,  
 [String](http://docs.google.com/java/lang/String.html) message,  
 [Object](http://docs.google.com/java/lang/Object.html) userData,  
 [Date](http://docs.google.com/java/util/Date.html) date,  
 long period,  
 long nbOccurences,  
 boolean fixedRate)  
 throws [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html)

Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date, period and number of occurrences.

If the timer notification to be inserted has a date that is before the current date, the method behaves as if the specified date were the current date.

For once-off notifications, the notification is delivered immediately.

For periodic notifications, the first notification is delivered immediately and the subsequent ones are spaced as specified by the period parameter.

Note that once the timer notification has been added into the list of notifications, its associated date, period and number of occurrences cannot be updated.

In the case of a periodic notification, the value of parameter *fixedRate* is used to specify the execution scheme, as specified in [Timer](http://docs.google.com/java/util/Timer.html).

**Specified by:**[addNotification](http://docs.google.com/javax/management/timer/TimerMBean.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long,%20boolean)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**type - The timer notification type.message - The timer notification detailed message.userData - The timer notification user data object.date - The date when the notification occurs.period - The period of the timer notification (in milliseconds).nbOccurences - The total number the timer notification will be emitted.fixedRate - If true and if the notification is periodic, the notification is scheduled with a *fixed-rate* execution scheme. If false and if the notification is periodic, the notification is scheduled with a *fixed-delay* execution scheme. Ignored if the notification is not periodic. **Returns:**The identifier of the new created timer notification. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - The date is null or the period or the number of occurrences is negative.**See Also:**[addNotification(String, String, Object, Date, long, long)](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long))

### addNotification

public [Integer](http://docs.google.com/java/lang/Integer.html) **addNotification**([String](http://docs.google.com/java/lang/String.html) type,  
 [String](http://docs.google.com/java/lang/String.html) message,  
 [Object](http://docs.google.com/java/lang/Object.html) userData,  
 [Date](http://docs.google.com/java/util/Date.html) date,  
 long period,  
 long nbOccurences)  
 throws [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html)

Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date, period and number of occurrences.

If the timer notification to be inserted has a date that is before the current date, the method behaves as if the specified date were the current date.

For once-off notifications, the notification is delivered immediately.

For periodic notifications, the first notification is delivered immediately and the subsequent ones are spaced as specified by the period parameter.

Note that once the timer notification has been added into the list of notifications, its associated date, period and number of occurrences cannot be updated.

In the case of a periodic notification, uses a *fixed-delay* execution scheme, as specified in [Timer](http://docs.google.com/java/util/Timer.html). In order to use a *fixed-rate* execution scheme, use [addNotification(String, String, Object, Date, long, long, boolean)](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long,%20boolean)) instead.

**Specified by:**[addNotification](http://docs.google.com/javax/management/timer/TimerMBean.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**type - The timer notification type.message - The timer notification detailed message.userData - The timer notification user data object.date - The date when the notification occurs.period - The period of the timer notification (in milliseconds).nbOccurences - The total number the timer notification will be emitted. **Returns:**The identifier of the new created timer notification. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - The date is null or the period or the number of occurrences is negative.**See Also:**[addNotification(String, String, Object, Date, long, long, boolean)](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long,%20boolean))

### addNotification

public [Integer](http://docs.google.com/java/lang/Integer.html) **addNotification**([String](http://docs.google.com/java/lang/String.html) type,  
 [String](http://docs.google.com/java/lang/String.html) message,  
 [Object](http://docs.google.com/java/lang/Object.html) userData,  
 [Date](http://docs.google.com/java/util/Date.html) date,  
 long period)  
 throws [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html)

Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date and period and a null number of occurrences.

The timer notification will repeat continuously using the timer period using a *fixed-delay* execution scheme, as specified in [Timer](http://docs.google.com/java/util/Timer.html). In order to use a *fixed-rate* execution scheme, use [addNotification(String, String, Object, Date, long, long, boolean)](http://docs.google.com/javax/management/timer/Timer.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long,%20long,%20boolean)) instead.

If the timer notification to be inserted has a date that is before the current date, the method behaves as if the specified date were the current date. The first notification is delivered immediately and the subsequent ones are spaced as specified by the period parameter.

**Specified by:**[addNotification](http://docs.google.com/javax/management/timer/TimerMBean.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date,%20long)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**type - The timer notification type.message - The timer notification detailed message.userData - The timer notification user data object.date - The date when the notification occurs.period - The period of the timer notification (in milliseconds). **Returns:**The identifier of the new created timer notification. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - The date is null or the period is negative.

### addNotification

public [Integer](http://docs.google.com/java/lang/Integer.html) **addNotification**([String](http://docs.google.com/java/lang/String.html) type,  
 [String](http://docs.google.com/java/lang/String.html) message,  
 [Object](http://docs.google.com/java/lang/Object.html) userData,  
 [Date](http://docs.google.com/java/util/Date.html) date)  
 throws [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html)

Creates a new timer notification with the specified type, message and userData and inserts it into the list of notifications with a given date and a null period and number of occurrences.

The timer notification will be handled once at the specified date.

If the timer notification to be inserted has a date that is before the current date, the method behaves as if the specified date were the current date and the notification is delivered immediately.

**Specified by:**[addNotification](http://docs.google.com/javax/management/timer/TimerMBean.html#addNotification(java.lang.String,%20java.lang.String,%20java.lang.Object,%20java.util.Date)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**type - The timer notification type.message - The timer notification detailed message.userData - The timer notification user data object.date - The date when the notification occurs. **Returns:**The identifier of the new created timer notification. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - The date is null.

### removeNotification

public void **removeNotification**([Integer](http://docs.google.com/java/lang/Integer.html) id)  
 throws [InstanceNotFoundException](http://docs.google.com/javax/management/InstanceNotFoundException.html)

Removes the timer notification corresponding to the specified identifier from the list of notifications.

**Specified by:**[removeNotification](http://docs.google.com/javax/management/timer/TimerMBean.html#removeNotification(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Throws:** [InstanceNotFoundException](http://docs.google.com/javax/management/InstanceNotFoundException.html) - The specified identifier does not correspond to any timer notification in the list of notifications of this timer MBean.

### removeNotifications

public void **removeNotifications**([String](http://docs.google.com/java/lang/String.html) type)  
 throws [InstanceNotFoundException](http://docs.google.com/javax/management/InstanceNotFoundException.html)

Removes all the timer notifications corresponding to the specified type from the list of notifications.

**Specified by:**[removeNotifications](http://docs.google.com/javax/management/timer/TimerMBean.html#removeNotifications(java.lang.String)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**type - The timer notification type. **Throws:** [InstanceNotFoundException](http://docs.google.com/javax/management/InstanceNotFoundException.html) - The specified type does not correspond to any timer notification in the list of notifications of this timer MBean.

### removeAllNotifications

public void **removeAllNotifications**()

Removes all the timer notifications from the list of notifications and resets the counter used to update the timer notification identifiers.

**Specified by:**[removeAllNotifications](http://docs.google.com/javax/management/timer/TimerMBean.html#removeAllNotifications()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html)

### getNbNotifications

public int **getNbNotifications**()

Gets the number of timer notifications registered into the list of notifications.

**Specified by:**[getNbNotifications](http://docs.google.com/javax/management/timer/TimerMBean.html#getNbNotifications()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Returns:**The number of timer notifications.

### getAllNotificationIDs

public [Vector](http://docs.google.com/java/util/Vector.html)<[Integer](http://docs.google.com/java/lang/Integer.html)> **getAllNotificationIDs**()

Gets all timer notification identifiers registered into the list of notifications.

**Specified by:**[getAllNotificationIDs](http://docs.google.com/javax/management/timer/TimerMBean.html#getAllNotificationIDs()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Returns:**A vector of Integer objects containing all the timer notification identifiers.

The vector is empty if there is no timer notification registered for this timer MBean.

### getNotificationIDs

public [Vector](http://docs.google.com/java/util/Vector.html)<[Integer](http://docs.google.com/java/lang/Integer.html)> **getNotificationIDs**([String](http://docs.google.com/java/lang/String.html) type)

Gets all the identifiers of timer notifications corresponding to the specified type.

**Specified by:**[getNotificationIDs](http://docs.google.com/javax/management/timer/TimerMBean.html#getNotificationIDs(java.lang.String)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**type - The timer notification type. **Returns:**A vector of Integer objects containing all the identifiers of timer notifications with the specified type.

The vector is empty if there is no timer notifications registered for this timer MBean with the specified type.

### getNotificationType

public [String](http://docs.google.com/java/lang/String.html) **getNotificationType**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets the timer notification type corresponding to the specified identifier.

**Specified by:**[getNotificationType](http://docs.google.com/javax/management/timer/TimerMBean.html#getNotificationType(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**The timer notification type or null if the identifier is not mapped to any timer notification registered for this timer MBean.

### getNotificationMessage

public [String](http://docs.google.com/java/lang/String.html) **getNotificationMessage**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets the timer notification detailed message corresponding to the specified identifier.

**Specified by:**[getNotificationMessage](http://docs.google.com/javax/management/timer/TimerMBean.html#getNotificationMessage(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**The timer notification detailed message or null if the identifier is not mapped to any timer notification registered for this timer MBean.

### getNotificationUserData

public [Object](http://docs.google.com/java/lang/Object.html) **getNotificationUserData**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets the timer notification user data object corresponding to the specified identifier.

**Specified by:**[getNotificationUserData](http://docs.google.com/javax/management/timer/TimerMBean.html#getNotificationUserData(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**The timer notification user data object or null if the identifier is not mapped to any timer notification registered for this timer MBean.

### getDate

public [Date](http://docs.google.com/java/util/Date.html) **getDate**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets a copy of the date associated to a timer notification.

**Specified by:**[getDate](http://docs.google.com/javax/management/timer/TimerMBean.html#getDate(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**A copy of the date or null if the identifier is not mapped to any timer notification registered for this timer MBean.

### getPeriod

public [Long](http://docs.google.com/java/lang/Long.html) **getPeriod**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets a copy of the period (in milliseconds) associated to a timer notification.

**Specified by:**[getPeriod](http://docs.google.com/javax/management/timer/TimerMBean.html#getPeriod(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**A copy of the period or null if the identifier is not mapped to any timer notification registered for this timer MBean.

### getNbOccurences

public [Long](http://docs.google.com/java/lang/Long.html) **getNbOccurences**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets a copy of the remaining number of occurrences associated to a timer notification.

**Specified by:**[getNbOccurences](http://docs.google.com/javax/management/timer/TimerMBean.html#getNbOccurences(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**A copy of the remaining number of occurrences or null if the identifier is not mapped to any timer notification registered for this timer MBean.

### getFixedRate

public [Boolean](http://docs.google.com/java/lang/Boolean.html) **getFixedRate**([Integer](http://docs.google.com/java/lang/Integer.html) id)

Gets a copy of the flag indicating whether a periodic notification is executed at *fixed-delay* or at *fixed-rate*.

**Specified by:**[getFixedRate](http://docs.google.com/javax/management/timer/TimerMBean.html#getFixedRate(java.lang.Integer)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**id - The timer notification identifier. **Returns:**A copy of the flag indicating whether a periodic notification is executed at *fixed-delay* or at *fixed-rate*.

### getSendPastNotifications

public boolean **getSendPastNotifications**()

Gets the flag indicating whether or not the timer sends past notifications.

The default value of the past notifications sending on/off flag is false.

**Specified by:**[getSendPastNotifications](http://docs.google.com/javax/management/timer/TimerMBean.html#getSendPastNotifications()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Returns:**The past notifications sending on/off flag value.**See Also:**[setSendPastNotifications(boolean)](http://docs.google.com/javax/management/timer/Timer.html#setSendPastNotifications(boolean))

### setSendPastNotifications

public void **setSendPastNotifications**(boolean value)

Sets the flag indicating whether the timer sends past notifications or not.

The default value of the past notifications sending on/off flag is false.

**Specified by:**[setSendPastNotifications](http://docs.google.com/javax/management/timer/TimerMBean.html#setSendPastNotifications(boolean)) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Parameters:**value - The past notifications sending on/off flag value.**See Also:**[getSendPastNotifications()](http://docs.google.com/javax/management/timer/Timer.html#getSendPastNotifications())

### isActive

public boolean **isActive**()

Tests whether the timer MBean is active. A timer MBean is marked active when the [start](http://docs.google.com/javax/management/timer/Timer.html#start()) method is called. It becomes inactive when the [stop](http://docs.google.com/javax/management/timer/Timer.html#stop()) method is called.

The default value of the active on/off flag is false.

**Specified by:**[isActive](http://docs.google.com/javax/management/timer/TimerMBean.html#isActive()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Returns:**true if the timer MBean is active, false otherwise.

### isEmpty

public boolean **isEmpty**()

Tests whether the list of timer notifications is empty.

**Specified by:**[isEmpty](http://docs.google.com/javax/management/timer/TimerMBean.html#isEmpty()) in interface [TimerMBean](http://docs.google.com/javax/management/timer/TimerMBean.html) **Returns:**true if the list of timer notifications is empty, false otherwise.

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Timer.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PREV CLASS   [**NEXT CLASS**](http://docs.google.com/javax/management/timer/TimerMBean.html) | [**FRAMES**](http://docs.google.com/index.html?javax/management/timer/Timer.html)    [**NO FRAMES**](http://docs.google.com/Timer.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#35nkun2) | [METHOD](#44sinio) |

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For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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