NSNotificationCenter Class Reference

Cocoa > Events & Other Input

2008-07-11

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NSNotificationCenter Class Reference

Inherits from	NSObject
Conforms to	NSObject (NSObject)
Framework	/System/Library/Frameworks/Foundation.framework
Availability	Available in Mac OS X v10.0 and later.
Companion guide	Notification Programming Topics for Cocoa
Declared in	NSNotification.h
Related sample code	EnhancedAudioBurn PDF Annotation Editor Quartz Composer WWDC 2005 TextEdit Sketch-112 TextEditPlus

Class at a Glance

The `NSNotificationCenter` class provides a way to send notifications to objects in the same task. It takes `NSNotification` objects and broadcasts them to any objects in the same task that have registered to receive the notification with the task's default notification center.

Principal Attributes

- **Notification dispatch table.** Each entry in this table specifies a notification set for a particular observer. A notification set is a subset of the notifications posted to the notification center. Each table entry contains three items:
  - **Notification observer:** Required. The object to be notified when qualifying notifications are posted to the notification center.
  - **Notification name:** Optional. Specifying a name reduces the set of notifications the entry specifies to those that have this name.
  - **Notification sender:** Optional. Specifying a sender reduces the set of notifications the entry specifies to those sent by this object.

  Table 1 shows the four types of dispatch table entries and the notification sets they specify. (This table omits the always present notification observer.)

Table 1 Types of dispatch table entries

Notification name	Notification sender	Notification set specified
Specified	Specified	Notifications with a particular name from a specific sender.
Specified	Unspecified	Notifications with a particular name by any sender.
Unspecified	Specified	Notifications posted by a specific sender.
Unspecified	Unspecified	All notifications.

Table 2 shows an example dispatch table with four observers.

Table 2 Example notification dispatch table

Observer	Notification name	Notification sender
`observerA`	`NSFileHandleReadCompletionNotification`	`nil`
`observerB`	`nil`	`addressTableView`
`observerC`	`NSWindowDidChangeScreenNotification`	`documentWindow`
`observerC`	`nil`	`addressTableView`
`observerD`	`nil`	`nil`

When notifications are posted to the notification center, each of the observers in Table 2 are notified of the following notifications:

- `observerA`: Notifications named `NSFileHandleReadCompletionNotification`.
- `observerB`: Notifications sent by `addressTableView`.
- `observerC`: Notifications named `NSWindowDidChangeScreenNotification` sent by `documentWindow` and notifications sent by `addressTableView`.
- `observerD`: All notifications.

Commonly Used Methods

`defaultCenter` (page 10)
Returns the task's default notification center.

`addObserver:selector:name:object:` (page 11)
Adds an entry to the notification center's dispatch table specifying at least an observer and a notification message.

`postNotificationName:object:` (page 12)
Creates and posts a notification to the notification center.

`removeObserver:` (page 13)
: Removes all entries from the notification center's dispatch center that specify a particular observer, so that it no longer receives notifications posted to that notification center.

Overview

An `NSNotificationCenter` object (or simply, **notification center**) provides a mechanism for broadcasting information within a task. An `NSNotificationCenter` object is essentially a notification dispatch table.

Objects register with a notification center to receive notifications (`NSNotification` objects) using the `addObserver:selector:name:object:` (page 11) method. Each invocation of this method specifies a set of notifications. Therefore, objects may register as observers of different notification sets by calling `addObserver:selector:name:object:` several times.

When an object (known as the **notification sender**) posts a notification, it sends an `NSNotification` object to the notification center. The notification center then notifies any observers for which the notification meets the criteria specified on registration by sending them the specified notification message, passing the notification as the sole argument. The order in which observers receive notifications is undefined. It is possible for the posting object and the observing object to be the same.

A notification center delivers notifications to observers synchronously. In other words, the `postNotification:` (page 11) methods do not return until all observers have received and processed the notification. To send notifications asynchronously use `NSNotificationQueue`. In a multithreaded application, notifications are always delivered in the thread in which the notification was posted, which may not be the same thread in which an observer registered itself.

Important: The notification center does not retain its observers, therefore, you must ensure that you unregister observers (using `removeObserver:` (page 13) or `removeObserver:name:object:` (page 14)) before they are deallocated. (If you don't, you will generate a runtime error if the center sends a message to a freed object.)

Each task has a default notification center. You typically don't create your own. An `NSNotificationCenter` object can deliver notifications only within a single task. If you want to post a notification to other tasks or receive notifications from other tasks, use a `NSDistributedNotificationCenter` object.

Tasks

Getting the Notification Center

`+ defaultCenter` (page 10)
: Returns the task's default notification center.

Managing Notification Observers

- `addObserver:selector:name:object:` (page 11)
  Adds an entry to the receiver's dispatch table with an observer, a notification selector and optional criteria: notification name and sender.
- `removeObserver:` (page 13)
  Removes all the entries specifying a given observer from the receiver's dispatch table.
- `removeObserver:name:object:` (page 14)
  Removes matching entries from the receiver's dispatch table.

Posting Notifications

- `postNotification:` (page 11)
  Posts a given notification to the receiver.
- `postNotificationName:object:` (page 12)
  Creates a notification with a given name and sender and posts it to the receiver.
- `postNotificationName:object:userInfo:` (page 13)
  Creates a notification with a given name, sender, and information and posts it to the receiver.

Class Methods

defaultCenter

Returns the task's default notification center.

```
+ (id)defaultCenter
```

Return Value
The current task's default notification center, which is used for system notifications.

Availability
Available in Mac OS X v10.0 and later.

Related Sample Code
Dicey
PDF Annotation Editor
Quartz Composer WWDC 2005 TextEdit
Sketch-112
TextEditPlus

Declared In
`NSNotification.h`

Instance Methods

addObserver:selector:name:object:

Adds an entry to the receiver's dispatch table with an observer, a notification selector and optional criteria: notification name and sender.

```
- (void)addObserver:(id)notificationObserver selector:(SEL)notificationSelector
    name:(NSString *)notificationName object:(id)notificationSender
```

Parameters

notificationObserver

Object registering as an observer. Must not be nil.

notificationSelector

Selector that specifies the message the receiver sends *notificationObserver* to notify it of the notification posting. The method the selector specifies must have one and only one argument.

notificationName

The name of the notification for which to register the observer; that is, only notifications with this name are delivered to the observer. When nil, the notification center doesn't use a notification's name to decide whether to deliver it to the observer.

notificationSender

The object whose notifications the observer wants to receive; that is, only notifications sent by this sender are delivered to the observer. When nil, the notification center doesn't use a notification's sender to decide whether to deliver it to the observer.

Availability

Available in Mac OS X v10.0 and later.

See Also

- removeObserver: (page 13)

Related Sample Code

ABPresence

ImageMapExample

QTAudioExtractionPanel

QTKitTimeCode

VideoViewer

Declared In

NSNotification.h

postNotification:

Posts a given notification to the receiver.

```
- (void)postNotification:(NSNotification *)notification
```

Parameters

notification

The notification to post. This value must not be `nil`.

Discussion

You can create a notification with the `NSNotification` class method `notificationWithName:object:` or `notificationWithName:object:userInfo:`. An exception is raised if *notification* is `nil`.

Availability

Available in Mac OS X v10.0 and later.

See Also

`- postNotificationName:object:` (page 12)

`- postNotificationName:object:userInfo:` (page 13)

Related Sample Code

ExtractMovieAudioToAIFF

QTExtractAndConvertToAIFF

QTExtractAndConvertToMovieFile

QTKitTimeCode

Declared In

`NSNotification.h`

postNotificationName:object:

Creates a notification with a given name and sender and posts it to the receiver.

```
- (void)postNotificationName:(NSString *)notificationName
    object:(id)notificationSender
```

Parameters

notificationName

The name of the notification.

notificationSender

The object posting the notification.

Discussion

This method invokes `postNotificationName:object:userInfo:` (page 13) with a *userInfo* argument of `nil`.

Availability

Available in Mac OS X v10.0 and later.

See Also

`- postNotification:` (page 11)

Declared In

`NSNotification.h`

postNotificationName:object:userInfo:

Creates a notification with a given name, sender, and information and posts it to the receiver.

```
- (void)postNotificationName:(NSString *)notificationName
    object:(id)notificationSender userInfo:(NSDictionary *)userInfo
```

Parameters

notificationName

The name of the notification.

notificationSender

The object posting the notification.

userInfo

Information about the the notification. May be nil.

Discussion

This method is the preferred method for posting notifications.

Availability

Available in Mac OS X v10.0 and later.

See Also

- postNotificationName:object: (page 12)

Declared In

NSNotification.h

removeObserver:

Removes all the entries specifying a given observer from the receiver's dispatch table.

```
- (void)removeObserver:(id)notificationObserver
```

Parameters

notificationObserver

The observer to remove. Must not be nil.

Discussion

Be sure to invoke this method (or removeObserver:name:object: (page 14)) before *notificationObserver* or any object specified in addObserver:selector:name:object: (page 11) is deallocated.

The following example illustrates how to unregister someObserver for all notifications for which it had previously registered:

```
[[NSNotificationCenter defaultCenter] removeObserver:someObserver];
```

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

GridCalendar

Quartz Composer WWDC 2005 TextEdit

Sketch-112

TextEditPlus

WhackedTV

Declared In

`NSNotification.h`

removeObserver:name:object:

Removes matching entries from the receiver's dispatch table.

```
- (void)removeObserver:(id)notificationObserver name:(NSString *)notificationName
    object:(id)notificationSender
```

Parameters

notificationObserver

Observer to remove from the dispatch table. Specify an observer to remove only entries for this observer. Must not be `nil`, or message will have no effect.

notificationName

Name of the notification to remove from dispatch table. Specify a notification name to remove only entries that specify this notification name. When `nil`, the receiver does not use notification names as criteria for removal.

notificationSender

Sender to remove from the dispatch table. Specify a notification sender to remove only entries that specify this sender. When `nil`, the receiver does not use notification senders as criteria for removal.

Discussion

Be sure to invoke this method (or `removeObserver:` (page 13)) before the observer object or any object specified in `addObserver:selector:name:object:` (page 11) is deallocated.

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

ImageMapExample

People

QTAudioExtractionPanel

QTKitMovieShuffler

VideoViewer

Declared In

`NSNotification.h`

Document Revision History

This table describes the changes to *NSNotificationCenter Class Reference*.

Date	Notes
2008-07-11	Removed a statement that the observer parameter can be nil in the removeObserver:name:object: method.
2007-04-02	Updated for Mac OS X v10.5
2006-11-07	Clarified how a notification center manages observers in its dispatch table.
	Updated return type of `defaultCenter` (page 10).
2006-05-23	First publication of this content as a separate document.

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