
NSTreeController Class Reference

Data Management: Data Types & Collections





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Document Revision History 27

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NSTreeController Class Reference

Inherits from	NSObjectController : NSController : NSObject
Conforms to	NSCoding (NSController) NSObject (NSObject)
Framework	/System/Library/Frameworks/AppKit.framework
Availability	Available in Mac OS X v10.4 and later.
Companion guide	Cocoa Bindings Programming Topics
Declared in	NSTreeController.h
Related sample code	AbstractTree CoreRecipes ImageApp QTMetadataEditor SourceView

Overview

The NSTreeController is a bindings compatible controller that manages a tree of objects. It provides selection and sort management. Its primary purpose is to act as the controller when binding NSOutlineView and NSBrowser instances to a hierarchial collection of objects.

An NSTreeController requires that you describe how the tree of objects is traversed by specifying the key path for child objects. All child objects for the tree must be key-value-coding compliant for the same child key path. If necessary you should implement accessor methods in your model classes, or categories on those classes, that map the child key to the appropriate class-specific method name.

An optional count key path can be specified that, if provided, returns the number of child objects available. Your model objects are expected to update the value of the count key path in a key-value-observing compliant method. You can optionally provide a leaf key path that specifies a key in your model object that returns YES if the object is a leaf node, and NO if it is not. Providing this key path prevents the NSTreeController from having to determine if a child object is a leaf node by examining the child object and as a result improve performance.

The root content object can be a single object, or an array of objects.

Adopted Protocols

NSCoding

- `encodeWithCoder:`
- `initWithCoder:`

NSCopying

- `copyWithZone:`

Tasks

Managing Sort Descriptors

- [setSortDescriptors:](#) (page 25)
Sets the sort descriptors used to arrange the receiver's contents.
- [sortDescriptors](#) (page 25)
Returns an array containing the sort descriptors used to arrange the receiver's content.

Setting the Content

- [setContent:](#) (page 22)
Sets the receiver's content to *content*.
- [content](#) (page 13)
Returns the receiver's content object.

Arranging Objects

- [arrangedObjects](#) (page 10)
Returns a proxy root tree node containing the receiver's sorted content objects.
- [rearrangeObjects](#) (page 17)
Use this method to trigger reordering of the receiver's content.

Getting the Current Selection

- [setSelectionIndexPath:](#) (page 24)
Sets the receiver's current selection to *indexPath*, returning YES if the selection was changed.
- [selectionIndexPath](#) (page 20)
Returns the index path of the first object in the receiver's selection, or `nil` if there is no selection.
- [setSelectionIndexPaths:](#) (page 24)
Sets the receiver's current selection to *indexPaths*, returning YES if the selection was changed.

- [selectionIndexPaths](#) (page 20)
Returns an array containing the index paths of the receiver's currently selected objects in the content.
- [selectedObjects](#) (page 20)
Returns an array containing the receiver's selected objects.
- [selectedNodes](#) (page 19)
Returns an array of the receiver's selected tree nodes.

Managing Selections

- [setSelectsInsertedObjects:](#) (page 24)
Sets whether the receiver will automatically select objects as they are inserted.
- [selectsInsertedObjects](#) (page 21)
Returns whether the receiver selects inserted objects automatically.
- [addSelectionIndexPaths:](#) (page 10)
Adds the objects at the specified *indexPaths* in the receiver's content to the current selection.
- [removeSelectionIndexPaths:](#) (page 19)
Removes the objects at the specified *indexPaths* from the receiver's current selection, returning YES if the selection was changed.
- [setAvoidsEmptySelection:](#) (page 21)
Sets whether the receiver will attempt to avoid an empty selection.
- [avoidsEmptySelection](#) (page 11)
Returns whether the receiver requires that the content array attempt to maintain a selection at all times.
- [setPreservesSelection:](#) (page 23)
Sets whether the receiver will attempt to preserve selection when the content changes.
- [preservesSelection](#) (page 17)
Returns whether the receiver will attempt to preserve the current selection when the content changes.
- [setAlwaysUsesMultipleValuesMarker:](#) (page 21)
Sets whether the receiver always returns the multiple values marker when multiple objects are selected, even if they have the same value.
- [alwaysUsesMultipleValuesMarker](#) (page 10)
Returns whether the receiver always returns the multiple values marker when multiple objects are selected, even if the selected items have the same value.

Adding, Inserting and Removing Objects

- [add:](#) (page 9)
Adds an object to the receiver after the current selection.
- [addChild:](#) (page 9)
Adds a child object to the currently selected item.
- [canAddChild](#) (page 11)
Returns YES if a child object can be added to the receiver's content.
- [canInsert](#) (page 12)
Returns YES if an object can be inserted into the receiver's content.

- [canInsertChild](#) (page 12)
Returns YES if a child object can be inserted into the receiver's content.
- [insert:](#) (page 14)
Creates a new object of the class specified by `objectClass` and inserts it into the receiver's content.
- [insertChild:](#) (page 14)
Creates a new object of the class specified by `objectClass` and inserts it into the receiver's content as a child of the current selection.
- [insertObject:atArrangedObjectIndexPath:](#) (page 15)
Inserts *object* into the receiver's arranged objects array at the location specified by *indexPath*, and adds it to the receiver's content.
- [insertObjects:atArrangedObjectIndexPaths:](#) (page 15)
Inserts *objects* into the receiver's arranged objects array at the locations specified in *indexPaths*, and adds them to the receiver's content.
- [remove:](#) (page 18)
Removes the receiver's selected objects from the content.
- [removeObjectAtArrangedObjectIndexPath:](#) (page 18)
Removes the object at the specified *indexPath* in the receiver's arranged objects from the receiver's content.
- [removeObjectsAtArrangedObjectIndexPaths:](#) (page 19)
Removes the objects at the specified *indexPaths* in the receiver's arranged objects from the receiver's content.
- [moveNode:toIndexPath:](#) (page 16)
Moves the specified tree node to the new index path.
- [moveNodes:toIndexPath:](#) (page 17)
Moves the specified tree nodes to the new index path.

Specifying Model Attributes

- [setChildrenKeyPath:](#) (page 22)
Sets the key path used by the receiver to access child objects to *key*.
- [childrenKeyPath](#) (page 12)
Returns the key path used to find the children in the receiver's objects.
- [setCountKeyPath:](#) (page 22)
Sets the key path used by the receiver to determine the number of objects at a node to *key*.
- [childrenKeyPathForNode:](#) (page 13)
Returns the key path used to find the children in the specified tree node.
- [countKeyPath](#) (page 13)
Returns the key path used to find the number of children for a node.
- [countKeyPathForNode:](#) (page 14)
Returns the key path that provides the number of children for a specified node.
- [setLeafKeyPath:](#) (page 23)
Sets the key path used by the receiver to determine if an object is a leaf node to *key*.
- [leafKeyPath](#) (page 16)
Returns the key path used by the receiver to determine if a node is a leaf key.

- [leafKeyPathForNode:](#) (page 16)
Returns the key path that specifies whether the node is a leaf node.

Instance Methods

add:

Adds an object to the receiver after the current selection.

- (void)add:(id)sender

Discussion

The *sender* is typically the object that invoked this method.

If the receiver is in object mode *newObject* is called and the returned object is added to the collection. If the receiver is in entity mode a new object is created that is appropriate as specified by the entity, and *newObject* is not used.

Special Considerations

Beginning with Mac OS X v10.4 the result of this method is deferred until the next iteration of the runloop so that the error presentation mechanism can provide feedback as a sheet.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [remove:](#) (page 18)

Declared In

NSTreeController.h

addChild:

Adds a child object to the currently selected item.

- (void)addChild:(id)sender

Discussion

The *sender* is typically the object that invoked this method.

If the receiver is in object mode *newObject* is called and the returned object is added as a child. If the receiver is in entity mode a new object is created that is appropriate for the relationship as specified by the entity, and *newObject* is not used.

Special Considerations

Beginning with Mac OS X v10.4 the result of this method is deferred until the next iteration of the runloop so that the error presentation mechanism can provide feedback as a sheet.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [remove:](#) (page 18)

Declared In

NSTreeController.h

addSelectionIndexPaths:

Adds the objects at the specified *indexPaths* in the receiver's content to the current selection.

- (BOOL)addSelectionIndexPaths:(NSArray *)*indexPaths*

Discussion

Attempting to change the selection may cause a `commitEditing` message which fails, thus denying the selection change.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [removeSelectionIndexPaths:](#) (page 19)

Declared In

NSTreeController.h

alwaysUsesMultipleValuesMarker

Returns whether the receiver always returns the multiple values marker when multiple objects are selected, even if the selected items have the same value.

- (BOOL)alwaysUsesMultipleValuesMarker

Discussion

The default is NO.

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setAlwaysUsesMultipleValuesMarker:](#) (page 21)

Declared In

NSTreeController.h

arrangedObjects

Returns a proxy root tree node containing the receiver's sorted content objects.

- (id)arrangedObjects

Discussion

This property is observable using key-value observing.

Special Considerations

Prior to Mac OS X v10.5 this method returned an opaque root node representing all the currently displayed objects. This method should be used for binding, no assumption should be made about what methods this object supports.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [rearrangeObjects](#) (page 17)

Declared In

NSTreeController.h

avoidsEmptySelection

Returns whether the receiver requires that the content array attempt to maintain a selection at all times.

- (BOOL)avoidsEmptySelection

Discussion

The default is YES.

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setAvoidsEmptySelection:](#) (page 21)

Declared In

NSTreeController.h

canAddChild

Returns YES if a child object can be added to the receiver's content.

- (BOOL)canAddChild

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [canInsertChild](#) (page 12)

Declared In

NSTreeController.h

canInsert

Returns YES if an object can be inserted into the receiver's content.

- (BOOL)canInsert

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [canInsertChild](#) (page 12)

Declared In

NSTreeController.h

canInsertChild

Returns YES if a child object can be inserted into the receiver's content.

- (BOOL)canInsertChild

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [insertChild:](#) (page 14)

Declared In

NSTreeController.h

childrenKeyPath

Returns the key path used to find the children in the receiver's objects.

- (NSString *)childrenKeyPath

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setChildrenKeyPath:](#) (page 22)

Declared In

NSTreeController.h

childrenKeyPathForNode:

Returns the key path used to find the children in the specified tree node.

- (NSString *)childrenKeyPathForNode:(NSTreeNode *)*node*

Parameters

node

A tree node in the receiver.

Return Value

A string containing the key path in *node* that provides the child nodes.

Availability

Available in Mac OS X v10.5 and later.

Declared In

NSTreeController.h

content

Returns the receiver's content object.

- (id)content

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setContent:](#) (page 22)

Declared In

NSTreeController.h

countKeyPath

Returns the key path used to find the number of children for a node.

- (NSString *)countKeyPath

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setCountKeyPath:](#) (page 22)

Declared In

NSTreeController.h

countKeyPathForNode:

Returns the key path that provides the number of children for a specified node.

```
- (NSString *)countKeyPathForNode:(NSTreeNode *)node
```

Parameters

node

A tree node in the receiver.

Return Value

A string containing the key path in *node* that provides the number of children.

Availability

Available in Mac OS X v10.5 and later.

Declared In

NSTreeController.h

insert:

Creates a new object of the class specified by `objectClass` and inserts it into the receiver's content.

```
- (void)insert:(id)sender
```

Discussion

The *sender* is typically the object that invoked this method.

If the receiver is in object mode `newObject` is called and the returned object is inserted into the collection. If the receiver is in entity mode a new object is created that is appropriate as specified by the entity, and `newObject` is not used.

Special Considerations

Beginning with Mac OS X v10.4 the result of this method is deferred until the next iteration of the runloop so that the error presentation mechanism can provide feedback as a sheet.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [add:](#) (page 9)

Declared In

NSTreeController.h

insertChild:

Creates a new object of the class specified by `objectClass` and inserts it into the receiver's content as a child of the current selection.

```
- (void)insertChild:(id)sender
```

Discussion

The *sender* is typically the object that invoked this method.

If the receiver is in object mode *newObject* is called and the returned object is inserted as a child. If the receiver is in entity mode a new object is created that is appropriate for the relationship as specified by the entity, and *newObject* is not used.

Special Considerations

Beginning with Mac OS X v10.4 the result of this method is deferred until the next iteration of the runloop so that the error presentation mechanism can provide feedback as a sheet.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [add:](#) (page 9)

Declared In

NSTreeController.h

insertObject:atArrangedObjectIndexPath:

Inserts *object* into the receiver's arranged objects array at the location specified by *indexPath*, and adds it to the receiver's content.

```
- (void)insertObject:(id)object atArrangedObjectIndexPath:(NSIndexPath *)indexPath
```

Availability

Available in Mac OS X v10.4 and later.

See Also

- [insertObjects:atArrangedObjectIndexPaths:](#) (page 15)

Related Sample Code

SourceView

Declared In

NSTreeController.h

insertObjects:atArrangedObjectIndexPaths:

Inserts *objects* into the receiver's arranged objects array at the locations specified in *indexPaths*, and adds them to the receiver's content.

```
- (void)insertObjects:(NSArray *)objects atArrangedObjectIndexPaths:(NSArray *)indexPaths
```

Availability

Available in Mac OS X v10.4 and later.

See Also

- [removeObjectAtArrangedObjectIndexPath:](#) (page 18)

Declared In

NSTreeController.h

leafKeyPath

Returns the key path used by the receiver to determine if a node is a leaf key.

- (NSString *)leafKeyPath

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setLeafKeyPath:](#) (page 23)

Declared In

NSTreeController.h

leafKeyPathForNode:

Returns the key path that specifies whether the node is a leaf node.

- (NSString *)leafKeyPathForNode:(NSTreeNode *)*node*

Parameters

node

A tree node in the receiver.

Return Value

A string containing the key path in *node* that specifies that the node is a leaf node.

Availability

Available in Mac OS X v10.5 and later.

Declared In

NSTreeController.h

moveNode:toIndexPath:

Moves the specified tree node to the new index path.

- (void)moveNode:(NSTreeNode *)*node* toIndexPath:(NSIndexPath *)*indexPath*

Parameters

node

A tree node.

indexPath

An index path specifying the new position in the receiver's content.

Availability

Available in Mac OS X v10.5 and later.

Related Sample Code

SourceView

Declared In

NSTreeController.h

moveNodes:toIndexPath:

Moves the specified tree nodes to the new index path.

```
- (void)moveNodes:(NSArray *)nodes toIndexPath:(NSIndexPath *)startingIndexPath
```

Parameters

nodes

An array of tree nodes.

startingIndexPath

An index path specifying the starting position to move the tree nodes to in the receiver's content.

Availability

Available in Mac OS X v10.5 and later.

Declared In

NSTreeController.h

preservesSelection

Returns whether the receiver will attempt to preserve the current selection when the content changes.

```
- (BOOL)preservesSelection
```

Discussion

The default is YES.

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setPreservesSelection:](#) (page 23)

Declared In

NSTreeController.h

rearrangeObjects

Use this method to trigger reordering of the receiver's content.

```
- (void)rearrangeObjects
```

Discussion

Subclasses should invoke this method if any parameter that affects the arranged objects changes.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [arrangedObjects](#) (page 10)

Declared In

NSTreeController.h

remove:

Removes the receiver's selected objects from the content.

- (void)remove:(id) *sender*

Discussion

The *sender* is typically the object that invoked this method.

Special Considerations

Beginning with Mac OS X v10.4 the result of this method is deferred until the next iteration of the runloop so that the error presentation mechanism can provide feedback as a sheet.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [add:](#) (page 9)

Related Sample Code

SourceView

Declared In

NSTreeController.h

removeObjectAtArrangedObjectIndexPath:

Removes the object at the specified *indexPath* in the receiver's arranged objects from the receiver's content.

- (void)removeObjectAtArrangedObjectIndexPath:(NSIndexPath *) *indexPath*

Availability

Available in Mac OS X v10.4 and later.

See Also

- [removeObjectsAtArrangedObjectIndexPaths:](#) (page 19)

Declared In

NSTreeController.h

removeObjectsAtArrangedObjectIndexPaths:

Removes the objects at the specified *indexPaths* in the receiver's arranged objects from the receiver's content.

- (void)removeObjectsAtArrangedObjectIndexPaths:(NSArray *)*indexPaths*

Availability

Available in Mac OS X v10.4 and later.

See Also

- [removeObjectAtArrangedObjectIndexPath:](#) (page 18)

Declared In

NSTreeController.h

removeSelectionIndexPaths:

Removes the objects at the specified *indexPaths* from the receiver's current selection, returning YES if the selection was changed.

- (BOOL)removeSelectionIndexPaths:(NSArray *)*indexPaths*

Discussion

Attempting to change the selection may cause a `commitEditing` message which fails, thus denying the selection change.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [addSelectionIndexPaths:](#) (page 10)

Declared In

NSTreeController.h

selectedNodes

Returns an array of the receiver's selected tree nodes.

- (NSArray *)selectedNodes

Return Value

An array containing the receiver's selected tree nodes

Availability

Available in Mac OS X v10.5 and later.

Declared In

NSTreeController.h

selectedObjects

Returns an array containing the receiver's selected objects.

- (NSArray *)selectedObjects

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

Related Sample Code

QTMetadataEditor

Declared In

NSTreeController.h

selectionIndexPath

Returns the index path of the first object in the receiver's selection, or nil if there is no selection.

- (NSIndexPath *)selectionIndexPath

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [selectionIndexPaths](#) (page 20)

Related Sample Code

SourceView

Declared In

NSTreeController.h

selectionIndexPaths

Returns an array containing the index paths of the receiver's currently selected objects in the content.

- (NSArray *)selectionIndexPaths

Discussion

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [selectionIndexPath](#) (page 20)

Declared In

NSTreeController.h

selectsInsertedObjects

Returns whether the receiver selects inserted objects automatically.

- (BOOL)selectsInsertedObjects

Discussion

The default is YES.

This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also- [setSelectsInsertedObjects:](#) (page 24)**Declared In**

NSTreeController.h

setAlwaysUsesMultipleValuesMarker:

Sets whether the receiver always returns the multiple values marker when multiple objects are selected, even if they have the same value.

- (void)setAlwaysUsesMultipleValuesMarker:(BOOL)flag

DiscussionSetting *flag* to YES can increase performance if your application doesn't allow editing multiple values. The default is NO.**Availability**

Available in Mac OS X v10.4 and later.

See Also- [alwaysUsesMultipleValuesMarker](#) (page 10)**Declared In**

NSTreeController.h

setAvoidsEmptySelection:

Sets whether the receiver will attempt to avoid an empty selection.

- (void)setAvoidsEmptySelection:(BOOL)flag

DiscussionIf *flag* is YES then the receiver will maintain a selection unless there are no objects in the content. The default is YES.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [avoidsEmptySelection](#) (page 11)

Declared In

NSTreeController.h

setChildrenKeyPath:

Sets the key path used by the receiver to access child objects to *key*.

- (void)setChildrenKeyPath:(NSString *)key

Availability

Available in Mac OS X v10.4 and later.

See Also

- [childrenKeyPath](#) (page 12)

Declared In

NSTreeController.h

setContent:

Sets the receiver's content to *content*.

- (void)setContent:(id)content

Discussion

The *content* can be an array of objects, or a single root object.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [content](#) (page 13)

Related Sample Code

ImageApp

Declared In

NSTreeController.h

setCountKeyPath:

Sets the key path used by the receiver to determine the number of objects at a node to *key*.

- (void)setCountKeyPath:(NSString *)key

Discussion

Specifying this key path, if the data is available in the model object, can increase performance, but disables insert and remove functionality.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [countKeyPath](#) (page 13)

Declared In

NSTreeController.h

setLeafKeyPath:

Sets the key path used by the receiver to determine if an object is a leaf node to *key*.

```
- (void)setLeafKeyPath:(NSString *)key
```

Discussion

Specifying this key path is optional. If the receiver is able to determine that a node is a leaf node, it can disable inserting or adding children to those nodes.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [leafKeyPath](#) (page 16)

Declared In

NSTreeController.h

setPreservesSelection:

Sets whether the receiver will attempt to preserve selection when the content changes.

```
- (void)setPreservesSelection:(BOOL)flag
```

Discussion

If *flag* is YES then the selection will be preserved, if possible. The default is YES.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [preservesSelection](#) (page 17)

Declared In

NSTreeController.h

setSelectionIndexPath:

Sets the receiver's current selection to *indexPath*, returning YES if the selection was changed.

- (BOOL)setSelectionIndexPath:(NSIndexPath *)*indexPath*

Discussion

Attempting to change the selection may cause a `commitEditingStyle` message which fails, thus denying the selection change.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [selectionIndexPaths](#) (page 20)

Declared In

NSTreeController.h

setSelectionIndexPaths:

Sets the receiver's current selection to *indexPaths*, returning YES if the selection was changed.

- (BOOL)setSelectionIndexPaths:(NSArray *)*indexPaths*

Discussion

Attempting to change the selection may cause a `commitEditingStyle` message which fails, thus denying the selection change.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setSelectionIndexPath:](#) (page 24)

Declared In

NSTreeController.h

setSelectsInsertedObjects:

Sets whether the receiver will automatically select objects as they are inserted.

- (void)setSelectsInsertedObjects:(BOOL) *flag*

Discussion

If *flag* is YES then items will be selected upon insertion. The default is YES.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [selectsInsertedObjects](#) (page 21)

Declared In

NSTreeController.h

setSortDescriptors:

Sets the sort descriptors used to arrange the receiver's contents.

- (void)setSortDescriptors:(NSArray *)*sortDescriptors*

Discussion

The *sortDescriptors* parameter contains an array of `NSSortDescriptor` objects. Setting *sortDescriptors* to `nil` causes the contents to be arranged in their natural order.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [sortDescriptors](#) (page 25)

Declared In

NSTreeController.h

sortDescriptors

Returns an array containing the sort descriptors used to arrange the receiver's content.

- (NSArray *)*sortDescriptors*

Discussion

Returns `nil` if the receiver has no sort descriptors configured. This property is observable using key-value observing.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setSortDescriptors:](#) (page 25)

Declared In

NSTreeController.h

Document Revision History

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

Date	Notes
2007-04-10	Updated for Mac OS X v10.5.
2006-05-23	First publication of this content as a separate document.

REVISION HISTORY

Document Revision History

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