
Apple Applications Schema Reference

Data Management: Syncing



2009-07-07



Apple Inc.
© 2004, 2009 Apple Inc.
All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, mechanical, electronic, photocopying, recording, or otherwise, without prior written permission of Apple Inc., with the following exceptions: Any person is hereby authorized to store documentation on a single computer for personal use only and to print copies of documentation for personal use provided that the documentation contains Apple's copyright notice.

The Apple logo is a trademark of Apple Inc.

Use of the "keyboard" Apple logo (Option-Shift-K) for commercial purposes without the prior written consent of Apple may constitute trademark infringement and unfair competition in violation of federal and state laws.

No licenses, express or implied, are granted with respect to any of the technology described in this document. Apple retains all intellectual property rights associated with the technology described in this document. This document is intended to assist application developers to develop applications only for Apple-labeled computers.

Every effort has been made to ensure that the information in this document is accurate. Apple is not responsible for typographical errors.

Apple Inc.
1 Infinite Loop
Cupertino, CA 95014
408-996-1010

.Mac is a registered service mark of Apple Inc.

Apple, the Apple logo, Cocoa, iCal, iChat, Logic, Mac, Mac OS, and Safari are trademarks of Apple Inc., registered in the United States and other countries.

Numbers is a trademark of Apple Inc.

Simultaneously published in the United States and Canada.

Even though Apple has reviewed this document, APPLE MAKES NO WARRANTY OR REPRESENTATION, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS DOCUMENT, ITS QUALITY, ACCURACY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. AS A RESULT, THIS DOCUMENT IS PROVIDED "AS IS," AND YOU, THE READER, ARE

ASSUMING THE ENTIRE RISK AS TO ITS QUALITY AND ACCURACY.

IN NO EVENT WILL APPLE BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT OR INACCURACY IN THIS DOCUMENT, even if advised of the possibility of such damages.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, ORAL OR WRITTEN, EXPRESS OR IMPLIED. No Apple dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Contents

Introduction to Apple Applications Schema Reference 7

[Who Should Read This Document? 7](#)
[Organization of This Document 7](#)
[See Also 7](#)

Safari Bookmarks 9

[Bookmark 9](#)
[Folder 10](#)

iCal Calendars 11

[Attendee 12](#)
[AudioAlarm 13](#)
[Calendar 14](#)
[CalendarOrder 15](#)
[CalDAVAccount 16](#)
[DisplayAlarm 17](#)
[Event 17](#)
[MailAlarm 20](#)
[Organizer 21](#)
[Recurrence 21](#)
[Task 23](#)

Address Book Contacts 27

[Calendar URI 28](#)
[Contact 28](#)
[Custom Field 31](#)
[Date 32](#)
[Email Address 33](#)
[Group 33](#)
[IM 34](#)
[Phone Number 35](#)
[Related Name 35](#)
[Street Address 36](#)
[URL 37](#)

Mail Notes 39

[Attachment 39](#)

Note 40
Keyword 41

Document Revision History 43

Figures

Safari Bookmarks 9

Figure 1 Bookmarks schema 9

iCal Calendars 11

Figure 1 Calendars schema 11

Address Book Contacts 27

Figure 1 Contacts schema 27

Mail Notes 39

Figure 1 Notes schema 39

Introduction to Apple Applications Schema Reference

You can use the Sync Services framework to sync user data including common data used by Apple applications. You can sync records using a public schema, an extended schema, or a custom schema. Contacts, Calendars, Bookmarks, and Notes are public schemas used by Apple applications—Address Book uses Contacts, iCal uses Calendars, Safari uses Bookmarks, and Mail uses Notes. This document describes the data classes and entities defined in public schemas used by Apple applications.

Who Should Read This Document?

You should read this document if you are a developer using Sync Services and you want to sync records using one of the Apple applications schemas. For example, read this document if you are developing an application that syncs calendars and contacts to a device or over .Mac. This document describes the data classes, entities, and properties defined in these schemas.

You should have a basic understanding of databases and entity-relationship models before reading this document. See Cocoa Design Patterns in *Cocoa Fundamentals Guide* for a description of entity-relationship models and terminology.

Organization of This Document

Each article in this document describes a specific schema.

- [“Safari Bookmarks”](#) (page 9) describes the data classes, entities, and properties used by Safari to sync bookmarks.
- [“iCal Calendars”](#) (page 11) describes the data classes, entities, and properties used by iCal to sync calendars.
- [“Address Book Contacts”](#) (page 27) describes the data classes, entities, and properties used by Address Book to sync contacts.
- [“Mail Notes”](#) (page 39) describes the data classes, entities, and properties used by Mail to sync notes.

See Also

For more information on the sync schema format and Sync Services, read *Sync Services Programming Guide* and *Sync Services Framework Reference*.

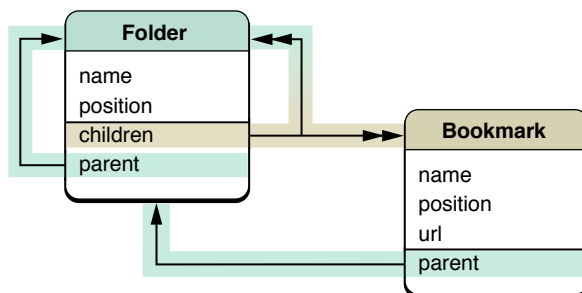
Safari Bookmarks

Schema Name	com.apple.Bookmarks
Declared in	/System/Library/SyncServices/Schemas/Bookmarks.syncschema
Data Classes	com.apple.Bookmarks
Availability	Available in Mac OS X v10.4 and later.

Safari bookmarks are used to represent bookmarks and groups of bookmarks in Safari. The primary attributes of a bookmark are its logical name and URL. Bookmarks can be hierarchical—you can add bookmarks to folders and folders to other folders.

Figure 1 (page 9) illustrates the entities, attributes, and relationships contained in the Bookmarks schema.

Figure 1 Bookmarks schema



Bookmark

Entity name	com.apple.bookmarks.Bookmark
Data class	com.apple.Bookmarks
Availability	Available in Mac OS X v10.4 and later.

Represents a URL that users can add to the bookmarks bar or Bookmarks Library in Safari. Below are the attributes and relationships of a Bookmark record.

Attribute	Type	Description
name	string	Logical name for this bookmark. Available in Mac OS X v10.4 and later.
position	number	The ordinal position of this bookmark relative to its parent folder. The first position has a value of 0. Available in Mac OS X v10.4 and later.
url	url	The URL for this bookmark. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
parent	Folder	The parent folder that contains this bookmark. Available in Mac OS X v10.4 and later.

Folder

Entity name	com.apple.bookmarks.Folder
Data class	com.apple.Bookmarks
Availability	Available in Mac OS X v10.4 and later.

Used to organize bookmarks into ordered collections that may contain subfolders. Below are the attributes and relationships of a Folder record.

Attribute	Type	Description
name	string	Title of this folder. Available in Mac OS X v10.4 and later.
position	number	The ordinal position of this folder relative to its parent folder. The first position has a value of 0. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
children	Bookmark, Folder	Subfolders and bookmarks contained in this folder. Available in Mac OS X v10.4 and later.
parent	Folder	The parent folder that contains this folder. Available in Mac OS X v10.4 and later.

iCal Calendars

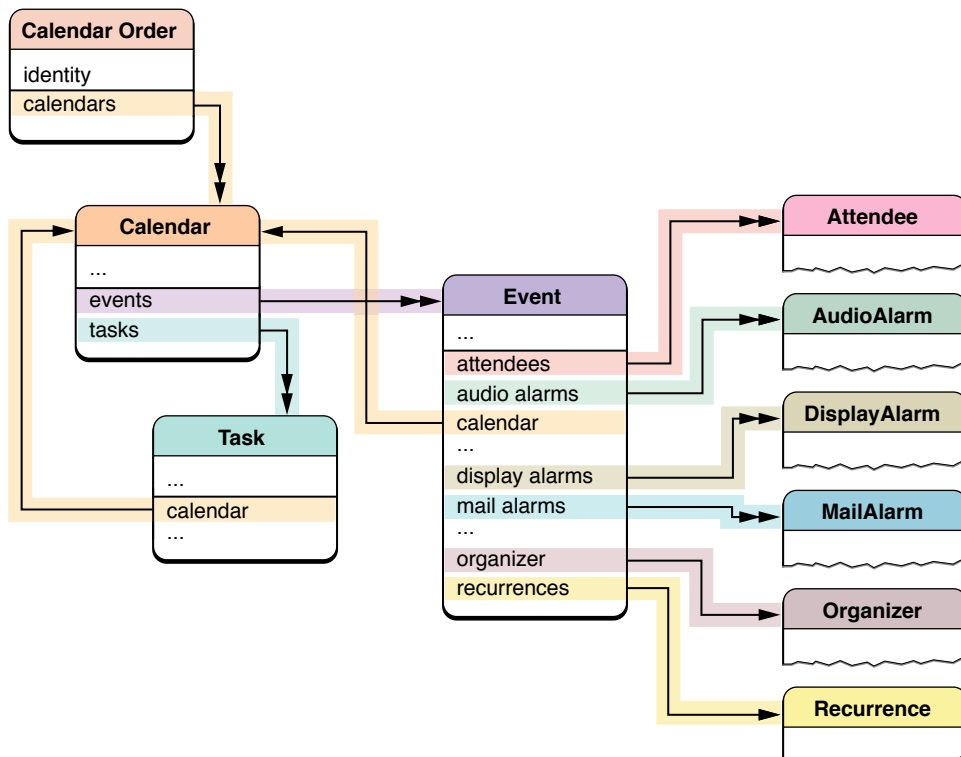
Schema Name	com.apple.Calendars
Declared in	/System/Library/SyncServices/Schemas/Calendars.syncschema
Data Classes	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

The Calendars schema defines all the entities and properties used to represent a calendar in iCal—entities used to create a calendar object containing multiple event and tasks with associated alarms. Other entities are used to describe details of an event or task such as the frequency, organizer, and attendees of an event.

Figure 1 (page 11) illustrates some of the entities, attributes, and relationships contained in the Calendars schema.

Important: In this schema, if the time value of a calendar date attribute is not specified, iCal will default it to 12:00 GMT/UTC.

Figure 1 Calendars schema



Syncing notes: How applications interpret a Boolean property missing from a pushed record is application dependent. If you omit a Boolean property from a pushed record, iCal assumes you intend to set the value to NO.

Attendee

Entity name	com.apple.calendars.Attendee
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

Someone who attends an event or participates in a task. Below are the attributes and relationships of an Attendee record.

Attribute	Type	Description
common name	string	This attendee's display name. Available in Mac OS X v10.4 and later.
delegatedfrom	array	An array of strings representing email addresses of those people who delegated participation in an event or task to this attendee. Available in Mac OS X v10.4 and later.
delegatedto	array	An array of strings representing the email addresses of people whom an attendee has delegated to participation in an event or task. For example, a manager may delegate participation in an event to his/her staff. Available in Mac OS X v10.4 and later.
directory entry	url	This attendee's directory entry in an LDAP database. The entry is a URL conforming to RFC 2255. See The LDAP URL Format for details. Available in Mac OS X v10.4 and later.
email	string	This attendee's email address. Available in Mac OS X v10.4 and later.
role	string	The role of this attendee. Possible values are chair, requiredparticipant, optionalparticipant, and nonparticipant. iCal defaults this value to requiredparticipant. Available in Mac OS X v10.4 and later.
rsvp	boolean	Set to YES if a response from this attendee is required, NO otherwise. iCal defaults this value to NO. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
status	string	A string that indicates the participation status of this attendee. Possible values are needsaction, accepted, declined, tentative, delegated, completed, and inprocess. Available in Mac OS X v10.4 and later.
user type	string	The type of attendee. Possible values are individual, group, resource, room, and unknown. iCal defaults this value to individual. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
owner	Event, Task	The event or task associated with this attendee. Available in Mac OS X v10.4 and later.

AudioAlarm

Entity name	com.apple.calendars.AudioAlarm
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

An alarm that alerts the user of a pending event or task by playing an audio file. Below are the attributes and relationships of an AudioAlarm record.

Attribute	Type	Description
description	string	Long description of this alarm. Available in Mac OS X v10.4 and later.
repeat count	number	The number of times this alarm will repeat. Available in Mac OS X v10.4 and later.
repeat interval	number	The delay, in seconds, between alarm repeats. Available in Mac OS X v10.4 and later.
sound	string	The name of a system sound that plays when this alarm triggers. Available in Mac OS X v10.5 and later.
summary	string	Short description of this alarm. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
triggerdate	calendar date	The date/time this alarm will trigger. This is an absolute value. If you set <code>triggerdate</code> , do not set <code>triggerduration</code> . Available in Mac OS X v10.4 and later.
triggerduration	number	The delay, in seconds, between this alarm and the reference date of owner. The reference date for an event is <code>start date</code> , and for a task is <code>due date</code> . If negative, triggers before the reference date, otherwise after the reference date. If you set <code>triggerduration</code> , do not set <code>triggerdate</code> . Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
owner	Event, Task	The event or task associated with this alarm. Available in Mac OS X v10.4 and later.

Calendar

Entity name	com.apple.calendars.Calendar
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

Represents a group of events and tasks which can have a number of alarms. For example, events associated with work can be grouped together on one calendar and manipulated separately from other events. Below are the attributes and relationships of a Calendar record.

Attribute	Type	Description
color	color	The color used to display this calendar and its events. Available in Mac OS X v10.5 and later.
notes	string	A description of this calendar. Available in Mac OS X v10.4 and later.
read only	boolean	A flag that indicates whether or not this calendar is read only. Set to YES if read-only, NO otherwise. Available in Mac OS X v10.4 and later.
subscription_url	url	The URL for a subscription calendar. Available in Mac OS X v10.5 and later.

Attribute	Type	Description
title	string	The name of this calendar. Available in Mac OS X v10.4 and later.
url	url	A link to a webpage about this calendar. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
events	Event	Events belonging to this calendar. Available in Mac OS X v10.4 and later.
tasks	Task	Tasks belonging to this calendar. Available in Mac OS X v10.4 and later.

CalendarOrder

Entity name	com.apple.calendars.CalendarOrder
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

Represents an ordered collection of calendars. There can be only one CalendarOrder record. This record is used by iCal and is intended to be read-only to all other clients. Below are the attributes and relationships of a CalendarOrder record.

Attribute	Type	Description
identity	string	A string used to identify this record. Must be set to com.apple.calendars.CalendarOrder. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
calendars	Calendar	All of the calendars in this collection. Available in Mac OS X v10.4 and later.

CalDAVAccount

Entity name	com.apple.calendars.CalDAVAccount
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.5 and later.

Represents a CalDAV account used to subscribe to its calendars. For example, if you add a `CalDAVAccount` record, iCal attempts to subscribe to it and if successful, display its calendars. There may be multiple `CalDAVAccount` records.

Attribute	Type	Description
<code>displayName</code>	string	A human-readable name for this account that iCal uses to represent this account and its group of calendars. Available in Mac OS X v10.5 and later.
<code>login</code>	string	Login name for this account. Available in Mac OS X v10.5 and later.
<code>fullName</code>	string	Full name of the user for this account. Available in Mac OS X v10.5 and later.
<code>principalURL</code>	string	The URL for subscribing to this CalDAV account. Available in Mac OS X v10.5 and later.
<code>useKerberos</code>	boolean	A flag that indicates whether or not to use Kerberos to authenticate this account. Set to YES if Kerberos should be used, NO otherwise. Available in Mac OS X v10.5 and later.
<code>refreshInterval</code>	number	How often in seconds to refresh this account and its calendars in iCal. Available in Mac OS X v10.5 and later.
<code>order</code>	number	The order of this account's group of calendars in the iCal display of calendars and groups.. Available in Mac OS X v10.5 and later.
<code>isAutoDiscovery</code>	boolean	A flag indicating whether or not the principal URI was automatically discovered by iCal. Set to YES if it was automatically discovered, NO otherwise. iCal sets this value when it subscribes to this account. Available in Mac OS X v10.5 and later.

DisplayAlarm

Entity name	com.apple.calendars.DisplayAlarm
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

An alarm that alerts the user of a pending event or task by displaying something. Below are the attributes and relationships of a DisplayAlarm record.

Attribute	Type	Description
description	string	A description of this alarm. Available in Mac OS X v10.4 and later.
repeat count	number	The number of times this alarm will repeat. Available in Mac OS X v10.4 and later.
repeat interval	number	The delay, in seconds, between alarm repeats. Available in Mac OS X v10.4 and later.
triggerdate	calendar date	The date/time this alarm will trigger. This is an absolute value. Available in Mac OS X v10.4 and later.
triggerduration	number	The delay, in seconds, between this alarm and the reference date of owner. The reference date for an event is start date, and for a task is due date. If negative, triggers before the reference date, otherwise after the reference date. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
owner	Event, Task	The event or task associated with this alarm. Available in Mac OS X v10.4 and later.

Event

Entity name	com.apple.calendars.Event
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

Represents a scheduled event or activity that can be displayed on a calendar. Below are the attributes and relationships of an Event record.

Attribute	Type	Description
all day	boolean	A flag that indicates whether or not this event occurs all day. Set to YES if this event occurs all day, NO otherwise. Available in Mac OS X v10.4 and later.
classification	string	The classification of this event. Possible values are public, private, and confidential. iCal defaults this value to public. Available in Mac OS X v10.4 and later.
description	string	A description of this event. Available in Mac OS X v10.4 and later.
end date	calendar date	The end date and time of this event. Available in Mac OS X v10.4 and later.
exception dates	array	An array of calendar dates that are exceptions to the recurrence of this event—dates where this event will not occur. Available in Mac OS X v10.4 and later.
floatingGMTDate	calendar date	The date of the floating event in GMT time. Available in Mac OS X v10.5 and later.
floatingOffset	number	The difference between the fixed date and GMT date of a floating event. Available in Mac OS X v10.5 and later.
location	string	The location where this event will take place. Available in Mac OS X v10.4 and later.
original date	calendar date	The original date of a detached event. When you create a recurrent event, a list of occurrences of the event are created. If you change a property of an occurrence of the event, it becomes detached and this attribute is used to record the original occurrence date. Available in Mac OS X v10.4 and later.
priority	number	A number from 0 to 9 used to indicate the priority of this event, where 0 indicates no priority, 1 indicates maximum priority, and 9 indicates minimum priority. For example, iCal uses 1 for high, 5 for medium and 9 for low priority (mostly used for tasks, not events). Available in Mac OS X v10.4 and later.
start date	calendar date	The start date and time of this event. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
status	string	A string that indicates the status of this event. Possible values are tentative, confirmed, cancelled, or none. iCal defaults this value to none. Available in Mac OS X v10.4 and later.
summary	string	A short description of this event. Available in Mac OS X v10.4 and later.
url	url	A link to a webpage about this event. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
attendees	Attendee	People who are invited to attend this event. Available in Mac OS X v10.4 and later.
audio_alarms	AudioAlarm	Audio alarms associated with this event. Available in Mac OS X v10.4 and later.
calendar	Calendar	The calendar this event belongs to. Available in Mac OS X v10.4 and later.
detached_events	Event	Events that were detached from this (recurrent) event. Only detached events have a main_event relationship set to its parent event. Used only if events were detached from this parent event. Available in Mac OS X v10.4 and later.
display_alarms	DisplayAlarm	Display alarms associated with this event. Available in Mac OS X v10.4 and later.
mail_alarms	MailAlarm	Mail alarms associated with this event. Available in Mac OS X v10.4 and later.
main_event	Event	The parent event of this event. Used only if this is a detached event. Available in Mac OS X v10.4 and later.
organizer	Organizer	Person or organization that sponsored this event. Available in Mac OS X v10.4 and later.
recurrences	Recurrence	Recurrence that contains frequency details about this event. Available in Mac OS X v10.4 and later.

MailAlarm

Entity name	com.apple.calendars.MailAlarm
Data class	com.apple.Calendar
Availability	Available in Mac OS X v10.4 and later.

An alarm that alerts the user of a pending event or task by sending email. Below are the attributes and relationships of a MailAlarm record.

Attribute	Type	Description
description	string	Long description of this alarm. Available in Mac OS X v10.4 and later.
recipients	array	An array of strings representing email addresses that will receive notification of this alarm. Available in Mac OS X v10.4 and later.
repeat count	number	The number of times this alarm will repeat. Available in Mac OS X v10.4 and later.
repeat interval	number	The delay, in seconds, between alarm repeats. Available in Mac OS X v10.4 and later.
summary	string	Short description of this alarm. Available in Mac OS X v10.4 and later.
triggerdate	calendar date	The date/time this alarm will trigger. This is an absolute value. Available in Mac OS X v10.4 and later.
triggerduration	number	The delay, in seconds, between this alarm and the reference date of owner. The reference date for an event is <code>start date</code> , and for a task is <code>due date</code> . If negative, triggers before the reference date, otherwise after the reference date. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
owner	Event, Task	The event or task associated with this alarm. Available in Mac OS X v10.4 and later.

Organizer

Entity name	com.apple.calendars.Organizer
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

Person or organization who sponsors or creates an event or task. Below are the attributes and relationships of an Organizer record.

Attribute	Type	Description
common name	string	This organizer's display name. Available in Mac OS X v10.4 and later.
directory entry	url	This organizer's directory entry in an LDAP database. The entry is a URL conforming to RFC 2255. See The LDAP URL Format for details. Available in Mac OS X v10.4 and later.
email	string	This organizer's email address. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
owner	Event, Task	The event or task sponsored by this organizer. Available in Mac OS X v10.4 and later.

Recurrence

Entity name	com.apple.calendars.Recurrence
Data class	com.apple.Calendars
Availability	Available in Mac OS X v10.4 and later.

Represents the details of the frequency of which an event or task may occur. Below are the attributes and relationships of a Recurrence record.

Attribute	Type	Description
bydaydays	array	An array of strings representing the days of the week on which this recurrence occurs. Possible string values are <code>sunday</code> , <code>monday</code> , <code>tuesday</code> , <code>wednesday</code> , <code>thursday</code> , <code>friday</code> , and <code>saturday</code> . If you set <code>bydaydays</code> , you must also set <code>bydayfreq</code> . For example, if <code>bydaydays</code> is <code>monday</code> and <code>bydayfreq</code> contains 0, then the recurrence is every Monday. Available in Mac OS X v10.4 and later.
bydayfreq	array	An array of integer numbers used in combination with <code>bydaydays</code> to specify which week within a month or year this recurrence occurs. For example, if <code>frequency</code> is <code>monthly</code> , <code>bydaydays</code> is <code>monday</code> and <code>bydayfreq</code> contains 2, then the recurrence will occur the second Monday of every month. Available in Mac OS X v10.4 and later.
bymonth	array	An array of numbers, with integer values ranging from 1 to 12, that indicate the months within a year that this recurrence occurs. Available in Mac OS X v10.4 and later.
bymonthday	array	An array of numbers, with integer values ranging from 1 to 31 or -31 to -1, that indicate the days within a month that this recurrence occurs. Negative values indicate the number of days from the last day of the month. Available in Mac OS X v10.4 and later.
bysetpos	array	An array of integer numbers used to specify specific days within an expanded set of occurrences. The numbers specify the index of an expanded sequence of occurrences starting with 1. For example, if <code>frequency</code> is <code>daily</code> , the event or task starts on a Monday, and <code>bysetpos</code> is (1, 8), then the recurrence will occur on the first and second Mondays only. If <code>bysetpos</code> is (2, 8) the event or task will occur on the first Tuesday in the sequence and the second Monday. Available in Mac OS X v10.4 and later.
byweeknumber	array	An array of numbers, with integer values ranging from 1 to 53 or -53 to -1, that indicate the weeks within a year that this recurrence occurs. Negative values indicate the number of weeks from the last week of the year. Available in Mac OS X v10.4 and later.
byyearday	array	An array of numbers, with integer values ranging from 1 to 366 or -366 to -1, that indicate the days within a year that this recurrence occurs. Negative values indicate the number of days from the last day of the year. Available in Mac OS X v10.4 and later.
count	number	The number of occurrences generated by this recurrence. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
frequency	string	The frequency of this recurrence specified by a constant. Possible values are <code>daily</code> , <code>weekly</code> , <code>monthly</code> , or <code>yearly</code> . Available in Mac OS X v10.4 and later.
interval	number	A positive integer indicating how often the specified frequency repeats. For example, if <code>frequency</code> is <code>daily</code> , then an <code>interval</code> value of 2 indicates a recurrence every two days. Available in Mac OS X v10.4 and later.
until	calendar date	The end date of this recurrence. Available in Mac OS X v10.4 and later.
weekstartday	string	A string that indicates the start day of the week. Possible values are <code>sunday</code> , <code>monday</code> , <code>tuesday</code> , <code>wednesday</code> , <code>thursday</code> , <code>friday</code> , and <code>saturday</code> . Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
owner	Event, Task	The event or task in which this recurrence appears. Available in Mac OS X v10.4 and later.

Task

Entity name	<code>com.apple.calendars.Task</code>
Data class	<code>com.apple.Calendar</code>
Availability	Available in Mac OS X v10.4 and later.

Something that you need to do or accomplish. Below are the attributes and relationships of a Task record.

Attribute	Type	Description
classification	string	A string that indicates the classification of this task. Possible values are <code>public</code> , <code>private</code> , or <code>confidential</code> . iCal defaults this value to <code>public</code> . Available in Mac OS X v10.4 and later.
completion date	calendar date	The completion date/time of this task. Available in Mac OS X v10.4 and later.
description	string	A long description of this task. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
due date	calendar date	Due date/time of this task. If the date is specified but not the time, iCal defaults the time to 12:00 GMT/UTC. Available in Mac OS X v10.4 and later.
due date is date only	boolean	A flag that is set to YES if due date is a date-only value, and NO if it has a date and time. Available in Mac OS X v10.4 and later.
exception dates	array	An array of calendar dates that are exceptions to the recurrence of this event—dates when this event will not occur. Available in Mac OS X v10.4 and later.
original date	calendar date	The original date of a detached task. When you create a recurrent task, a list of occurrences of the task is created. If you change a property of an occurrence task, it becomes detached and this attribute is used to record the original occurrence date. Available in Mac OS X v10.4 and later.
priority	number	A number from 0 to 9 used to indicate the priority of this task, where 0 indicates no priority, 1 indicates maximum priority, and 9 indicates minimum priority. For example, iCal uses 1 for high, 5 for medium and 9 for low priority. Available in Mac OS X v10.4 and later.
start date	calendar date	The start date of this task (must be a date-only value). Available in Mac OS X v10.4 and later.
status	string	A string that indicates the status of this task. Possible values are cancelled, needsaction, completed, inprocess or none. iCal defaults this value to none. Available in Mac OS X v10.4 and later.
summary	string	A short description of this task. Available in Mac OS X v10.4 and later.
url	url	A link to a webpage about this task. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
attendees	Attendee	People who will participate in this task. Available in Mac OS X v10.4 and later.
audio alarms	AudioAlarm	The audio alarms associated with this task. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
calendar	Calendar	The calendar this task belongs to. Available in Mac OS X v10.4 and later.
detached tasks	Task	Tasks that are detached from this task. Not used if this is not a recurrent task. Available in Mac OS X v10.4 and later.
display alarms	DisplayAlarm	The display alarms associated with this task. Available in Mac OS X v10.4 and later.
mail alarms	MailAlarm	The mail alarms associated with this task. Available in Mac OS X v10.4 and later.
main task	Task	The parent task of this task. Not used if this is not a detached task. Available in Mac OS X v10.4 and later.
organizer	Organizer	The person or organization that initiated this task. Available in Mac OS X v10.4 and later.
recurrences	Recurrence	The recurrence that contains frequency details about this task. Available in Mac OS X v10.4 and later.

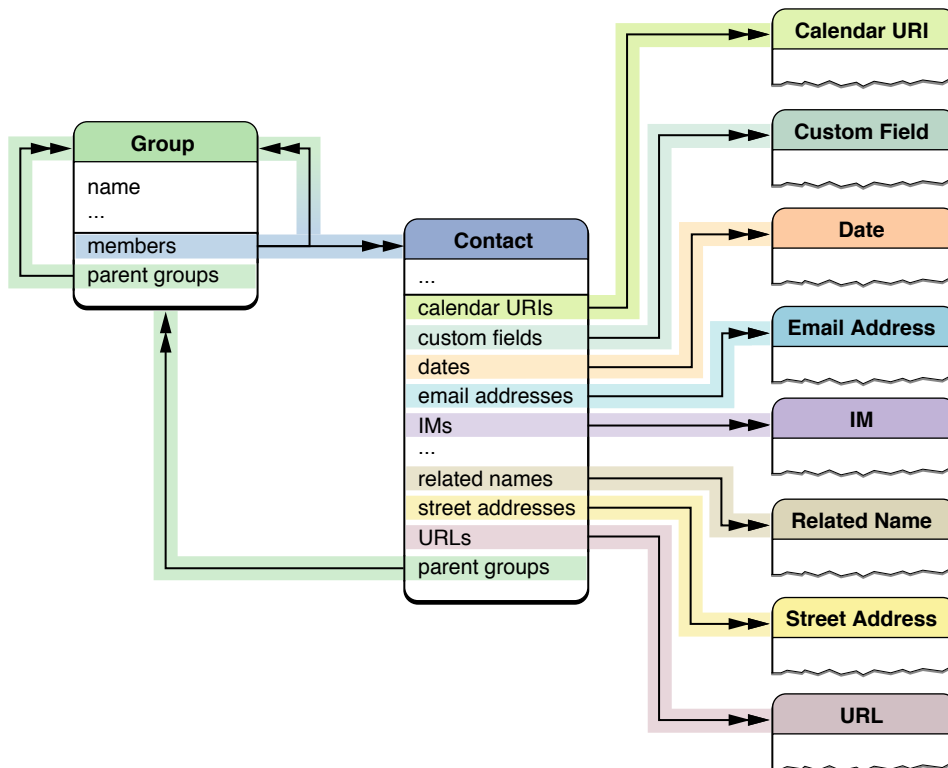
Address Book Contacts

Schema Name	com.apple.Contacts
Declared in	/System/Library/SyncServices/Schemas/Contacts.syncschema
Data Classes	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

The Contacts schema is used to represent a database of contact information—information about people and companies—where contacts can be grouped hierarchically. These entities are used by many Apple Applications including Address Book, Mail, and iChat. Address Book is the primary end-user application used to author contacts, so caution should be taken when modifying contact records from other applications.

Figure 1 illustrates the entities, attributes, and relationships contained in the Contacts schema.

Figure 1 Contacts schema



Calendar URI

Entity name	com.apple.contacts.CalendarURI
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.5 and later.

A protocol-independent location for a user's calendar.

Attribute	Type	Description
type	enum	The type of URI. Possible values are <code>home</code> , <code>work</code> , and <code>other</code> . If <code>other</code> , then <code>label</code> is used. Available in Mac OS X v10.5 and later.
label	string	The label used to display this attribute. Available in Mac OS X v10.5 and later.
value	string	The protocol-independent location for this calendar—for example, <code>http://cal.host1.com/user/cal.ics</code> . Available in Mac OS X v10.5 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.5 and later.

Contact

Entity name	com.apple.contacts.Contact
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

A Contact contains information about a person or company including its name, phone numbers, email addresses, street address, instant message accounts, important dates, and an image used for display. Below are the attributes and relationships of a Contact record.

Attribute	Type	Description
birthday	date	This contact's birthday. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
company name	string	This contact's company or organization name, if applicable. Available in Mac OS X v10.4 and later.
company name yomi	string	A phonetic representation of this contact's company or organization name. Available in Mac OS X v10.4 and later.
department	string	This contact's department name within a company, if applicable. Available in Mac OS X v10.4 and later.
display as company	enum	Specifies how to display this contact. Possible values are person and company. Available in Mac OS X v10.4 and later.
display order	enum	Specifies the order of the first and last names. Possible values are firstNameFirst and lastNameFirst. Available in Mac OS X v10.4 and later.
first name	string	This contact's first name. Available in Mac OS X v10.4 and later.
first name yomi	string	A phonetic representation of this contact's first name. Available in Mac OS X v10.4 and later.
hobby	string	This contact's hobby. Available in Mac OS X v10.4 and later.
image	data	An image representing this contact. Available in Mac OS X v10.4 and later.
job title	string	This contact's job title, if applicable. Available in Mac OS X v10.4 and later.
last name	string	This contact's last name. Available in Mac OS X v10.4 and later.
last name yomi	string	A phonetic representation of this contact's last name. Available in Mac OS X v10.4 and later.
maiden name	string	This contact's maiden name, if applicable. Available in Mac OS X v10.4 and later.
middle name	string	This contact's middle name. Available in Mac OS X v10.4 and later.
middle name yomi	string	A phonetic representation of this contact's middle name. Available in Mac OS X v10.4 and later.

Attribute	Type	Description
nickname	string	This contact's nickname if applicable. Available in Mac OS X v10.4 and later.
notes	string	Miscellaneous notes about this contact. Available in Mac OS X v10.4 and later.
short name	string	This contact's short name. Can be any string—for example, a login name. Available in Mac OS X v10.4 and later.
suffix	string	Suffix appended to this contact's name, such as "Sr.," "Jr.," "III," or "Esq." Available in Mac OS X v10.4 and later.
ticker symbol	string	A company's ticker symbol—for example, AAPL for Apple Computer. Available in Mac OS X v10.4 and later.
title	string	Title in front of this contact's name, such as "Mr.," "Mrs.," "General," "Cardinal," or "Lord." Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
calendar URIs	Calendar URI	One or more calendars belonging to this contact. Available in Mac OS X v10.5 and later.
custom fields	Custom Field	Custom fields associated with this contact. Available in Mac OS X v10.4 and later.
dates	Date	Miscellaneous dates associated with this contact, such as a spouse's birthday or a wedding anniversary. Available in Mac OS X v10.4 and later.
email addresses	Email Address	Email addresses for this contact. Available in Mac OS X v10.4 and later.
IMs	IM	This contact's instant message accounts. Available in Mac OS X v10.4 and later.
parent groups	Group	Groups that contain this contact. Available in Mac OS X v10.4 and later.
phone numbers	Phone Number	Phone numbers for this contact. Available in Mac OS X v10.4 and later.
Primary Calendar URI	CalendarURI	The primary calendar belonging to this contact. Available in Mac OS X v10.5 and later.

Relationship	Targets	Description
primary custom field	Custom Field	The primary custom field associated with this contact. Available in Mac OS X v10.4 and later.
primary date	Date	The primary date associated with this contact—for example, a birthday. Available in Mac OS X v10.4 and later.
primary email address	Email Address	This contact's primary email address. Available in Mac OS X v10.4 and later.
primary IM	IM	This contact's primary instant message account. Available in Mac OS X v10.4 and later.
primary phone number	Phone Number	This contact's primary phone number. Available in Mac OS X v10.4 and later.
primary related name	Related Name	The primary person this contact is related to—for example, a spouse. Available in Mac OS X v10.4 and later.
primary street address	Street Address	The primary mailing address for this contact. Available in Mac OS X v10.4 and later.
primary URL	Primary URL	The primary URL associated with this contact. Available in Mac OS X v10.4 and later.
related names	Related Name	Names of people related to this contact. Available in Mac OS X v10.4 and later.
street addresses	Street Address	Mailing addresses for this contact. Available in Mac OS X v10.4 and later.
URLs	URL	URLs associated with this contact. Available in Mac OS X v10.4 and later.

Custom Field

Entity name	com.apple.contacts.Custom Field
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

A custom field about a contact. Simply a key-value pair where both the key and the value are strings. Below are the attributes and relationships of a Custom Field record.

Attribute	Type	Description
label	string	The label used to display this attribute. Available in Mac OS X v10.4 and later.
value	string	The value of this attribute. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

Date

Entity name	com.apple.contacts.Date
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

Represents an important date, other than a birthday, associated with a contact. Below are the attributes and relationships of a Date record.

Attribute	Type	Description
label	string	A label used to display this attribute when the type is other. For example, "First Date." Available in Mac OS X v10.4 and later.
type	enum	The type of date. Possible values are anniversary, and other. If other, then label is used. Available in Mac OS X v10.4 and later.
value	date	The date of the event. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

Email Address

Entity name	com.apple.contacts.Email Address
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

Represents a contact's email address. Below are the attributes and relationships of a Email Address record.

Attribute	Type	Description
label	string	A label used to display this attribute when the type is other. For example, ".Mac email." If this attribute is not set, then Address Book will use "other" as the label. Available in Mac OS X v10.4 and later.
type	enum	The type of email address. Possible values are home, work, and other. If other, then label is used. Available in Mac OS X v10.4 and later.
value	string	The email address. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

Group

Entity name	com.apple.contacts.Group
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

A collection of contacts and/or groups. Allows nonstrict hierarchical organization of contacts—contacts and groups can belong to multiple groups. Also supports phone, email, and street address distribution lists. Below are the attributes and relationships of a Group record.

Attribute	Type	Description
name	string	The name of this group. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
distribution email addresses	Email Address	Email addresses for this group used as a distribution list. Available in Mac OS X v10.4 and later.
distribution phone numbers	Phone Number	Phone numbers for this group used as a distribution list. Available in Mac OS X v10.4 and later.
distribution street addresses	Street Address	Street addresses for this group used as a distribution list. Available in Mac OS X v10.4 and later.
members	Contact, Group	Contacts and subgroups belonging to this group. Available in Mac OS X v10.4 and later.
parent groups	Group	Groups that contain this group. Available in Mac OS X v10.4 and later.

IM

Entity name	com.apple.contacts.IM
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

A contact's instant message account. Below are the attributes and relationships of an IM record.

Attribute	Type	Description
label	string	A label used to display this attribute when the type is other. Available in Mac OS X v10.4 and later.
service	enum	The type of instant message services. Possible values are aim, jabber, msn, yahoo, and icq. Available in Mac OS X v10.4 and later.
type	enum	The type of account. Possible values are home, work, and other. If other then label is used. Available in Mac OS X v10.4 and later.
user	string	The instant message account name. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

Phone Number

Entity name	com.apple.contacts.Phone Number
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

Represents a contact's phone number. Below are the attributes and relationships of a Phone Number record.

Attribute	Type	Description
label	string	A label used to display this attribute when <code>type</code> is other. For example, "home business." Available in Mac OS X v10.4 and later.
type	enum	Specifies the type of phone number. Possible values are <code>home</code> , <code>work</code> , <code>mobile</code> , <code>home fax</code> , <code>work fax</code> , <code>pager</code> , <code>main</code> and <code>other</code> . If <code>other</code> then the <code>label</code> attribute is used. Available in Mac OS X v10.4 and later.
value	string	The phone number. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

Related Name

Entity name	com.apple.contacts.Related Name
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

A name of a person that is related to a contact such as the name of a spouse or children. Below are the attributes and relationships of a Related Name record.

Attribute	Type	Description
label	string	A label used to display this attribute when the type is other. For example, "Uncle" or "Aunt." Available in Mac OS X v10.4 and later.
type	enum	The type of this related name. Possible values are mother, father, parent, sister, brother, child, friend, spouse, partner, assistant, manager, and other. If other, then label is used. Available in Mac OS X v10.4 and later.
value	string	The name of the related person. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

Street Address

Entity name	com.apple.contacts.Street Address
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

Represents a contact's mailing address. Below are the attributes and relationships of a Street Address record.

Attribute	Type	Description
city	string	The city part of this address. Available in Mac OS X v10.4 and later.
country	string	The country part of this address Available in Mac OS X v10.4 and later.
country code	string	The code for the country. Available in Mac OS X v10.4 and later.
label	string	A label used to display this attribute when the type is other. For example, "Vacation home address." Available in Mac OS X v10.4 and later.

Attribute	Type	Description
postal code	string	The zip code part of this address. Available in Mac OS X v10.4 and later.
state	string	The state part of this address. Available in Mac OS X v10.4 and later.
street	string	The street part of this address. Available in Mac OS X v10.4 and later.
type	enum	The type of address. Possible values are <code>home</code> , <code>work</code> , and <code>other</code> . If <code>other</code> then <code>label</code> is used. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

URL

Entity name	com.apple.contacts.URL
Data class	com.apple.Contacts
Availability	Available in Mac OS X v10.4 and later.

Link to a website about or associated with a contact. Below are the attributes and relationships of a URL record.

Attribute	Type	Description
label	string	A label used to display this attribute when the type is <code>other</code> . For example, “Home business.” Available in Mac OS X v10.4 and later.
type	enum	The type of URL. Possible values are <code>home page</code> , <code>home</code> , <code>work</code> , and <code>other</code> . If <code>other</code> then <code>label</code> is used. Available in Mac OS X v10.4 and later.
value	URL	The URL for this attribute. Available in Mac OS X v10.4 and later.

Relationship	Targets	Description
contact	Contact	The contact that this record belongs to. Available in Mac OS X v10.4 and later.

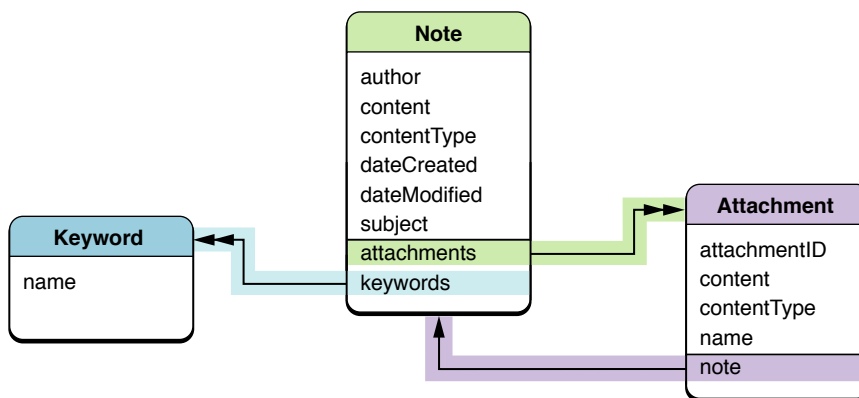
Mail Notes

Schema Name	com.apple.Notes
Declared in	/System/Library/SyncServices/Schemas/Notes.syncschema
Data Classes	com.apple.Notes
Availability	Available in Mac OS X v10.5 and later.

This schema is used by the Mail application to sync all notes that appear in the Notes mailbox in Mail.

Figure 1 illustrates the entities, attributes, and relationships contained in the Notes schema.

Figure 1 Notes schema



Attachment

Entity name	com.apple.notes.Attachment
Data class	com.apple.Notes
Availability	Available in Mac OS X v10.5 and later.

An arbitrary file included with the body text of a note.

Attribute	Type	Description
attachmentID	string	An identifier used to mark the location of an attachment in the body text. Available in Mac OS X v10.5 and later.
content	data	The content of the file attachment. Available in Mac OS X v10.5 and later.
contentType	string	The MIME type of the content. This value is unrestricted. Available in Mac OS X v10.5 and later.
name	string	The human-readable name for this attachment. Available in Mac OS X v10.5 and later.

Relationship	Targets	Description
note	Note	The note that this attachment belongs to. Available in Mac OS X v10.5 and later.

Note

Entity name	com.apple.notes.Note
Data class	com.apple.Notes
Availability	Available in Mac OS X v10.5 and later.

A user's note, similar to email, which is a textual description with attachments.

Attribute	Type	Description
author	string	The email address of the user who created the note. Mail requires that this property be set. Available in Mac OS X v10.5 and later.
content	string	The body text of this note. Mail requires that this property be set. Available in Mac OS X v10.5 and later.
contentType	enum	The type of content for parsing and display. Possible values are <code>text/plain</code> and <code>text/html</code> . Mail requires that this property be set. Available in Mac OS X v10.5 and later.
dateCreated	date	The date the note was created. Mail requires that this property be set. Available in Mac OS X v10.5 and later.

Attribute	Type	Description
dateModified	date	The date the note was last modified. Mail requires that this property be set. Available in Mac OS X v10.5 and later.
subject	string	The contents of the note; typically, the first line of the note. Mail requires that this property be set. Available in Mac OS X v10.5 and later.

Relationship	Targets	Description
attachments	Attachment	A collection of attachments contained in this note. Attachments may appear in multiple locations within the body text. Available in Mac OS X v10.5 and later.
keywords	Keyword	A collection of keywords used to describe and classify this note. Available in Mac OS X v10.5 and later.

Keyword

Entity name	com.apple.notes.Keyword
Data class	com.apple.Notes
Availability	Available in Mac OS X v10.5 and later.

A keyword used to identify a note.

Attribute	Type	Description
name	string	The text for this keyword. Available in Mac OS X v10.5 and later.

Document Revision History

This table describes the changes to *Apple Applications Schema Reference*.

Date	Notes
2009-07-07	Minor edits throughout.
2007-10-31	Minor updates throughout.
2007-07-11	Updated for Mac OS X v10.5.
2006-02-07	Made minor edits throughout.
2005-04-29	Added description of a Contact record's Phone Numbers relationship.
	New document that describes the schemas introduced in Mac OS X v10.4 for syncing contacts, calendars, and bookmarks in Apple applications.

