iPod Notes Feature Guide

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Introduction to iPod Notes Feature Guide

The iPod Notes feature allows the iPod to support interactive personal multimedia presentations. Such presentations can be used, for example, as directed lessons or self-paced electronic guided tours. The Notes feature supports the use of text, audio, and album cover graphics for iPod models beginning with third-generation iPod (dock connector) models with touch wheel. Support for photos (JPEG files) and videos is also available for 5th generation iPods running iPod software version 1.2 or later, and requires iTunes 7.0.1 or later.

You should read this document if you want to develop such interactive guided content for presentation on iPod. If you are considering podcasting your multimedia content, or if you anticipate delivering your content through iTunes U, you should read the first chapter, "iPod Notes Concepts" (page 9), and especially the section "Podcasting As an Alternative" (page 17) to better inform your choices.

Organization of This Document

This document provides an overview of the iPod Notes feature and describes how to create and organize content for presentation using the Notes feature.

See Also

To use this document effectively, you must be able to create, edit, and store files on your computer. There are numerous resources available from Apple's website and in third-party books, videos, and websites to help you achieve these prerequisites. This section provides pointers to resources specific to the skills required to effectively use the Notes feature. It serves as a starting point; is not exhaustive.

Related Documents

This document assumes that you are familiar with the basic features and functions of iTunes and iPod, as described in these documents:

- The *iPod Features Guide*, downloadable in PDF form from Apple's iPod Support Site.
- Your iPod *Quick Start* guide. This small booklet came in the box with your iPod.

Related Websites

You might also find helpful resources and information about iPod and iTunes at these information sources :

- Apple's iTunes U site describes iTunes U and the iTunes Affiliate program and provides contact information for any institution interested in becoming an iTunes U campus.
- Apple's iPod Service & Support site provides useful information about your iPod and how to use it.
- Apple's "Which iPod Do I Have" web page explains how to identify various iPod models.
- You can download the latest version of iTunes from Apple's iTunes download page.

Alternative Resources

Audio and video podcasts can be effective alternatives to interactive presentations using the iPod Notes feature. See "Podcasting As an Alternative" for a brief introduction to podcast presentations. Many podcast-related resources are available on the World Wide Web. Here are a few from Apple:

- Essential Tips for Podcast Lovers web page introduces podcasts and podcasting.
- PodCasting and iTunes: Technical Specification provides concise but detailed instructions for publishing your podcast through the iTunes Store.
- Podcasters' Discussion Forum allows you to connect with other podcasters to ask questions and share information.

iPod Notes Concepts

Overview

Many iPod owners and third-party software developers have learned how to take advantage of iPod's built-in Notes feature to keep and display reminders, journal entries, and to-do lists on iPod. These standalone note files can be very useful. But the Notes feature offers the ability to display interactive multimedia presentations. This chapter introduces the concept of a multimedia presentation, explains how it works, and shows how you can easily create one of your own.

Note: The Notes feature is supported for iPod models beginning with third-generation iPod (dock connector) models with touch wheel; the iPod shuffle, which does not have a visual display, is not supported.

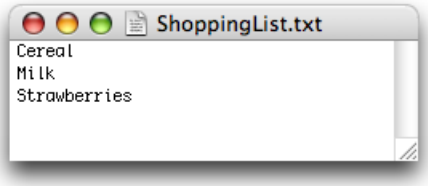
Basic Uses of Notes

The most basic capabilities of the iPod Notes feature are very easy to use; in fact, you can add a note to your iPod in a minute or two. To do so, you simply:

1. Connect your iPod to your computer as you usually do.
2. In iTunes, enable the iPod for disk use:
    a. Select your iPod under Devices in the Source list.
    b. Click the Summary tab.
    c. In the Options section of the Summary pane, click the "Enable disk use" checkbox. Note that if the "Manually manage songs and playlists" option is enabled, "Enable disk use" is always enabled or turned on.
3. Type a few lines in your favorite word processor and save the file to your iPod in the Notes folder.

Note: Be sure to save the document as a text file.

Figure 1-1 Simple text file note



4. In the Finder, open the Notes folder on the iPod and verify that the file (`ShoppingList.txt`, or whatever you named it) is there.

To view the note, disconnect your iPod, scroll the menu to Extras, and select Notes. Choose the name the file you created and press the Center button to display the content of the file. You can't edit the file using iPod, but you can delete it or update it whenever your iPod is connected to your computer.

Advanced Uses of Notes

Knowing how easy it is to use simple notes, it should be no surprise that with little more effort, you can take advantage of advanced Notes feature capabilities to create sophisticated interactive presentations for use on iPod.

You can use the iPod Notes feature with your custom content to easily transform any iPod with a dock connector into an automated personal tutor or a self-paced electronic tour guide. You can create text notes, and you can set iPod so users see only your notes without having access to other iPod functions. Furthermore, you can also customize the iPod interface by creating custom menus to display categories that users navigate to view your notes, and you can link the notes together as well as to audio clips, album cover graphics, photos, and videos to enhance the experience.

Note: Linking to photos and videos is supported only for 5th generation iPods running iPod Software version 1.2 or later. All other Notes feature capabilities described in this document are supported for iPod models beginning with third-generation iPod (dock connector) models with touch wheel.

Examples

To better understand some common scenarios in which you might want to take advantage of this feature, consider the following illustrative examples.

Course Tutorial

A teacher might want to offer additional relevant information for interested students in an astronomy course. By preparing the content and storing it electronically, the teacher could easily update it to adapt to changes and to add material for new discoveries. He could then quickly structure that content for use with the Notes feature and load it onto an iPod for a student to use as a self-paced Notes tutorial.

He might even want to publish the tutorial to a broader audience by distributing it over iTunes U or over the internet.

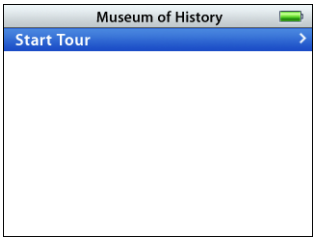
As an example, the astronomy student could scroll through the names of Jupiter's moons, choose Europa to read details about it, and then listen to a description while viewing a telescopic photo of it.

Directed Museum Tour

Many museums offer devices such as tape players or CD players for use as personal electronic docents. A tour director could load the appropriate content, keyed to correspond to established stations within the museum, onto an iPod to allow each visitor to have it direct her on a self-paced guided tour.

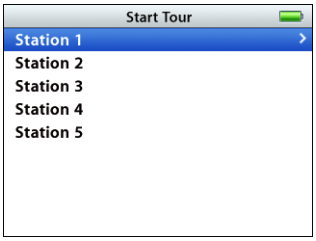
For example, a visitor to the Museum of History might see a main menu on the iPod like this:

Figure 1-2 Directed tour — start



Pressing the Center (or Select) button, she would start the tour. Upon arriving at each station, she would scroll through the list to the entry for that station:

Figure 1-3 Directed tour — stations



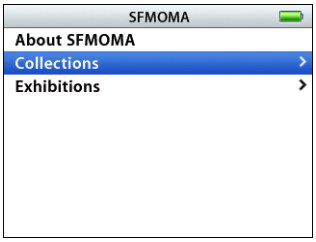
She would then press the Center button to choose the station and listen to an audio explanation of the exhibit.

Figure 1-4 Directed tour — The Big Bang audio

Self-guided or Virtual Museum Tour

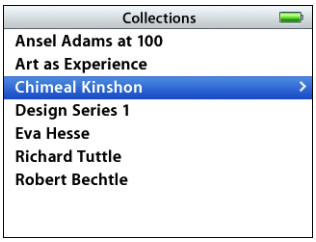
Alternatively, the iPod could be set up to allow users to browse for topics in any order. For example, consider a museum (perhaps the San Francisco Museum of Modern Art) whose exhibits are not presented sequentially. Since each exhibit is a self-contained and easy-to-locate collection of notable works by a single artist, the tour should accommodate the visitor's viewing order preferences. Another benefit of this type of tour is that a viewer could take a virtual tour of the collections—from a bus, a beach, or even a hospital bed. The main menu could look like this:

Figure 1-5 Self-guided tour — start



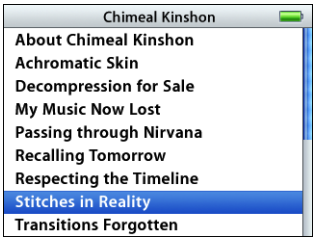
The visitor would choose "Collections" to see a list of artists and other museum collections:

Figure 1-6 Self-guided tour — collections



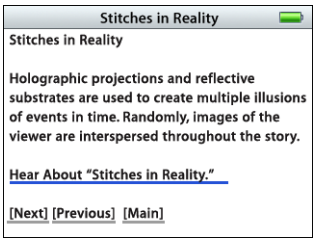
She could then choose an artist to see a list of his works featured in the museum:

Figure 1-7 Self-guided tour — artist



She could choose one of his works, perhaps one she is standing in front of, and read something about it:

Figure 1-8 Self-guided tour — text description 1

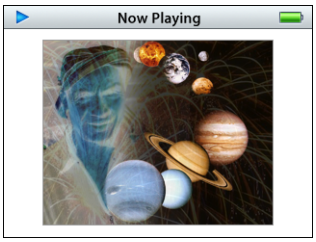


She could then choose a link to hear the artist talking about the creative process. If the audio file has an image associated with it, the image is displayed next to the name of the audio file:

Figure 1-9 Self-guided tour — audio description

Finally, she could press the Center button twice to see a larger version of the picture:

Figure 1-10 Self-guided tour — graphic



When audio is done playing, iPod shows the note text again. You can instruct your users to press the Play/Pause button to pause the audio if they want to see the image longer.

How It Works

To understand how the Notes feature works, you need to be familiar with a few basic components and concepts:

- **note:** a plain text file. The simplest notes contain text for display on the iPod screen, as in Figure 1-1 (page 10). The name of a simple note file will typically end with a *.txt* extension. See "Note Files" (page 20) for details.
- **folder:** a regular folder, just as on your Mac or PC, that may contain files and/or other folders.

- **Notes folder**: a specific folder, named *Notes*, that must be present on the iPod. It serves as the root or home folder for all Notes feature content on iPod.
- **media file:** a standard-format graphic, audio, or videofile. See "Media files" (page 25) for details.
- **link:** a hyperlink logically connecting one note to a folder, a media file, or another note. See "Linking to Notes and Folders" (page 42) and "Linking to Media Files" (page 45) for details.
- **markup:** a set of plain-text character sequences used to specify HTML-style commands to affect the behavior of the Notes feature. See "Markup in Notes" (page 21) for details.

Notes

A note is a single text file. As illustrated in "Basic Uses of Notes" (page 9), the simplest notes contain text for display on the iPod screen and have names ending with a *.txt* extension.

Notes can be entered and displayed in several languages. For more information, see "Text Encoding" (page 23).

In addition to plain text notes, four types of special-purpose notes are supported:

- **Preferences note:** Holds global settings for your presentation.
- **.link note:** A note used as an alias to a note or media file.
- **.linx note:** A note used to specify a menu.
- **ERRORS note:** A note used for debugging purposes.

For more information, see "Special-purpose Notes" (page 22).

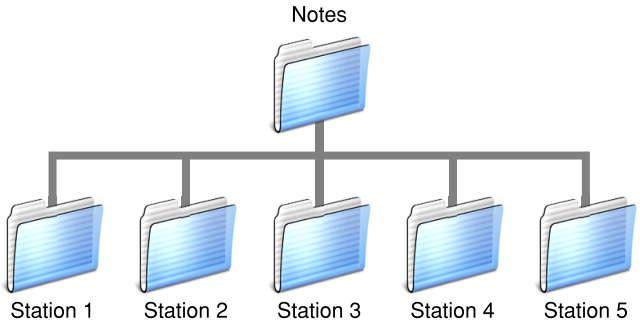
Folders

Just as you store files in folders (also known as directories) on your computer, you store notes in folders on iPod. As mentioned above, the Notes folder is required and it serves as the main folder for all notes and notes-related folders.

In fact, as you saw in the basic use example ("Basic Uses of Notes" (page 9)), the simplest form of Notes presentation consists of just a single note in the Notes folder, like this:

You can improve your presentation significantly simply by organizing the notes by using a hierarchy of folders to create menus or categories. In addition to grouping stored files, folders also serve as part of the navigational structure of your Notes presentation: by default, when the user selects a folder, the items in that folder are listed alphabetically by name. And if one of those items is a folder, selecting that folder will cause its contents to be listed, and so on. Thus without a single line of code, you can build a sophisticated organization with navigational capabilities built in.

A simple way to organize the Museum of History example above, would be with a folder hierarchy like this:



Note that each station folder could contain other folders and other notes. To follow the example, the Station 1 folder would enclose a note with a link to the Big Bang audio file in the iTunes library. See "Links" (page 16) for further information.

Note: Just as you wouldn't want all the files on your computer in a single folder, you wouldn't want a large number of notes in the Notes folder. Imagine scrolling to find the shopping list note (`ShoppingList.txt`) if it were stored in a folder with a hundred other notes.

To learn more about organizing your content hierarchy, see "Organizing Your Presentation" (page 41).

Media Files

Media files are exactly that: files designed to contain visual or audio content. Currently, the Notes feature supports the use of cover art graphics, audio files, photos, and videos. Media can be stored in a variety of file formats. See "Media File Formats" (page 35) for a list of supported formats and why you might want to use one instead of another.

As with notes, you store photos in the Notes folder hierarchy. The file format currently supported for photos is JPEG.

Unlike with notes and photos, you don't copy songs, cover graphics, or videos into the Notes folder hierarchy. Instead, you use iTunes to manage these media files for iPod as you normally would.

To provide access to one of these media files in your presentation, you create a link to that media file from a note within the appropriate folder. To learn more, see "Linking to Media Files" (page 45).

Markup

Markup allows you to specify a small set of HTML-style elements that the Notes feature accepts as directives to perform some action or to change its behavior. One element is the title element, used to specify a title to be used (in place of the default file name) when displaying a note. The title element looks like this:

```
<TITLE> Alternate Title </TITLE>
```

If you have worked with HTML or XML documents, these elements should seem very familiar. If you haven't, they are easy to learn and understand. They consist of three components:

- tags, which must be entered exactly as specified in this document
- attributes
- text that you enter to customize the element for your presentation

In the title element, for example:

- <TITLE> is the opening tag. It must be entered exactly as shown.
- "Alternate Title" is the name you specify to be displayed to the user (instead of the filename of the note).
- </TITLE> is the closing tag; note the slash (/). This tag must be entered exactly as shown.

Note that some elements do not have closing tags, and for some elements the closing tags are optional. This treatment is consistent with that of standard HTML markup.

More complicated elements may contain attributes; more on this later.

For more information about using markup elements to affect Notes feature behavior, see "Markup in Notes" (page 21).

Links

Within a note you can specify a link (also known as a *hyperlink* or *web link*) with an anchor element. This is the same kind of link that you see on websites, but instead of opening a web page, the link opens another note or folder in the Notes presentation or plays a media file.

An anchor element is slightly more complicated than a title element. For example, it might look like this:

```
<A HREF="note200">See note number 200.</A>
```

This element defines a link to another note with the filename `note200.txt`. It may not be obvious, but the opening tag is <A>; it just includes the HREF (hyperlink reference) attribute:

```
HREF="note200"
```

which in this case specifies the destination anchor of the link, identifying which note should be displayed when the link is clicked.

The link itself is the text “See note number 200.“ It appears, underlined, on the iPod display to indicate that it is a live link. For more details, see “Linking to Notes and Folders” and “Linking to Media Files”.

Setting iPod to Show Only Your Presentation

To ensure that the user sees only your presentation on the iPod, you set the iPod into *notes only* status, also known as *museum mode*.

To set the iPod to museum mode:

Create a plain text file named “Preferences.txt” and add the following line:

```
<meta name="NotesOnly" content="true">
```

Save the file and copy it into the Notes folder on iPod.

Podcasting As an Alternative

Some presentations do not require the interactivity supported by the Notes feature. A public-service announcement presentation or a guided tour through a single exhibit, for example, may not require any branching or backing up. You might prefer to provide such content as a podcast. Some of the benefits of podcasts include the following:

- They can be audio, video, or both.
- They can include content in multiple languages.
- You can easily distribute them through the iTunes Store.
- You can provide them as episodes, each labeled to identify its content, to support
  - Revised or newer versions of the same content.
  - The same content in a different languages.
  - Different parts of a larger subject, such as lectures in a class, exhibits in a museum, tourist sites in a city, and so forth.
- The user can easily download them any time (for example, weeks in advance to study your travelogue prior to visiting that foreign country, or minutes before walking out the door to visit the local museum using your exhibit tour guide.)
- The user can easily play them on the iPod and in iTunes (on both Mac OS X and Windows).

There is already a vibrant community of podcast enthusiasts, and they offer a growing collection of resources to help you learn about podcasting. The following resources contain a wealth of information relevant to podcasting:

- Essential Tips for Podcast Lovers web page introduces podcasts and podcasting.
- PodCasting and iTunes: Technical Specification provides concise but detailed instructions for publishing your podcast through the iTunes Store.

- Podcasters' Discussion Forum allows you to connect with other podcasters to ask questions and share information.

Apple offers numerous technologies and applications such as QuickTime, iMovie, and GarageBand for creating content for podcasts. Some of these are described in “Creation Tools”. These sites also offer helpful information about Apple tools for developing content:

- Podcasting in Education is a good starting point for teachers and other education professionals.
- The iLife Multimedia Tutorials site provides getting-started information and videos for iPhoto, iTunes, GarageBand, iMovie, iDVD, and iWeb..
- Creating Video for iPod describes using QuickTime Pro to create new video content or convert existing video content for use with your iPod and in your podcasts.

Creating Presentation Content

Creating Notes

Interactive presentations involve navigation which requires decisions by the user, so it's critical to organize your content so that it feels natural and intuitive. It should always be obvious what the user can or should do next. Frustrate your viewers a few times, and they're likely to lose interest quickly.

It's best to start your presentation by devising a plan. A good plan need not be an entire presentation on its own, but it should be realistic, unambiguous, and comprehensive. Clearly, a small, informal presentation doesn't need a lengthy written plan, but for every presentation the plan author should consider the following factors:

- **Content research:** Where will you get it, and in what form?
- **Audience research:** Who will use your presentation, and what are their backgrounds and levels of experience and knowledge?
- **Content creation or acquisition:** Do you have the rights to existing content? Can you create the content?
- **Information design:** How do the content pieces logically fit together? What's the theme and purpose?
- **UI/navigation design:** What's the best way for the user to move through the content?
- **Functional testing:** Does every part work? Are there typos? Are there dead ends or bad transitions?
- **Usability testing:** Do people other than yourself feel that it works well and is engaging?
- **Production:** Do you need help with illustration, or with audio recording or mixing?
- **Publication:** Will it be posted to iTunes U? Downloadable for free to all?
- **Maintenance:** How will you fix bugs and keep the content up to date?
- **Retirement:** How long should this presentation be available? How will you know when it should be retired?

With a plan in mind, you can begin experimenting with the organization of your material. There are many different methods and techniques to help in this regard. For example:

- **Outlining:** An outline can help group related concepts, integrate existing materials, and reveal areas for which content is needed. Hierarchy diagrams can quickly expose logical and organizational ambiguities, dead ends, and other problems.

- **Structure/hierarchy diagrams:** Structure diagrams help sort and consolidate similar content and identify relationships between resources. They also can quickly expose ill-formed relationships, redundant content, and groupings of dissimilar materials.
- **Directional diagrams:** Known to programmers as flow charts, directional diagrams can suggest subtle logical interrelations that might otherwise not be obvious, and can quickly expose loops, missing connections, dead ends, and other navigational problems.
- **Storyboarding:** Storyboards illustrate concepts in sketch form, allowing proof-of-concept testing of style, taste, audience fit, and so forth early in the project, prior to investing time and development resources on potentially unimportant features.

Note: The best presentations are often those that stem from the author's interests, hobbies, or passions. In such cases, the author is likely to have a collection of relevant materials. If you are that author, your best bet might be to "work backwards"—to first gather those materials, organize them into logical categories, and let the content define the navigational structure.

Once you've worked out the overall design for your presentation, you're ready to build the content to populate it. This chapter shows you how that's done.

Note Files

Fundamentally, a note is just a file with text to be displayed. In "Basic Uses of Notes" (page 9), you saw how easy it is to create a basic note file with any application that can handle text files. It's a good idea to use the same application to write and edit all your notes, unless you are familiar with character encodings, line terminators, and file formats.

As you write your note files, you should be mindful of the size of the iPod display. Occasionally, scrolling through a long passage is more convenient than moving through screen after screen. More often than not, however, keeping individual notes short improves the user experience by forcing your writing to be concise, reducing unnecessary scrolling, and maintaining a precise, uncluttered feel to the interface.

As the number of notes increases, try to keep them sensibly organized in folders on your computer. Keep files with similar content grouped together, making them easier to find and easier to integrate into your presentation. Keep the number of files in a folder to five or six when possible. When the number of files grows, try to devise subcategories and add a folder for each subcategory, separating the files into the appropriate folders. This practice will help maintain sensible organization/structure while reducing the risk of content bloat and redundancy, and it will tend to keep your menus from overrunning the length of the iPod screen. Moreover, the default folder navigation facility allows you to load the entire hierarchy onto your iPod and quickly get a glimpse of how well it's organized and where potential problems might lie.

Develop simple, logical file naming conventions and use them consistently. To help you manage your notes efficiently, you should consider using some notation that identifies related notes as having a common theme or purpose. For example, notes about Europa in the astronomy example might be named something like `JupMoonEuropa_atmosphere001.txt`. Aside from clearly indicating the nature of the file's content, this approach enables searching on a part of the name to locate entire grouped categories of content (JupMoon, for example, to find all content about moons of Jupiter). Another consideration is that you might want to avoid using spaces and special characters in file names if your software tools don't handle such names well.

Learn to use the title element to create a display name for your file. While a name like `JupMoonEuropa_atmosphere001.txt` helps you maintain your files, it's perhaps not as appealing to the viewer as "Oxygen on Europa?" or "Europa's Atmosphere."

Markup in Notes

With a little extra effort, you can add markup to control the order in which the text is displayed. You can add links to media files, to other note files, and even to other folders. You can direct the flow of your presentation. You can offer the reader the ability to choose which topics to view first and even which topics to ignore. This section introduces these capabilities, and the next chapter explores them in greater detail.

The Notes feature supports some handy basic HTML-style tags:

- You can force a paragraph break in the text of a note by inserting `<BR>` or `<P>`. Although the closing tags `</BR>` and `</P>` are optional, they can be very helpful during content updating and debugging.
- By default, notes in a folder are listed alphabetically by file name. You can insert a title element in the note to specify another name: `<TITLE>`NewTitle`</TITLE>`. This feature is useful with `.link` files, described in "Linking to Notes and Folders" (page 42).
- You can apply a simple encryption to text, rendering it unrecognizable to the casual reader, by placing it between `<ROT13>` and `</ROT13>` tags. ROT13 encryption simply substitutes each character with the character 13 positions farther in the character set, such that A becomes N, for example. The characters a-z and A-Z are processed; other characters are ignored.
- If you place an `<INSTRUCTIONS>` tag in a note, the entire contents of the note will be replaced by a short set of instructions on using the Notes feature:

  "To view text files here, enable iPod for disk use, then drag text files to the Notes folder on iPod. See the iPod Features Guide or go to www.apple.com/support/ipod for more information."

  The file name will be listed as "Instructions." Both the name and the text will appear in the iPod's currently selected language. Note that the instruction text is not editable.

Note: These tags are not case-sensitive, but using them consistently from the start could prove helpful, for example, with batch edits and translation between word processing formats.

Note Support Limits

There are a few limits regarding notes that you should keep in mind:

- The Notes feature supports a maximum of 1,000 notes. If you try to put more than that number in your iPod's Notes folder hierarchy, only the first 1,000 will be loaded.
- The size of any single note is truncated to 4,096 bytes of text (about 1,000 words).
- Up to 64 kilobytes of note text is cached. If the text of a note is in the cache, the iPod doesn't need to spin its disk to display it. When 64 kilobytes of text have been cached, the oldest notes in the cache are released as necessary to make room for new notes that are loaded.

Special-purpose Notes

In addition to plain text notes, four types of special-purpose notes are currently supported:

- **Preferences note:** A note used to establish global settings for your Notes presentation. Its name must be Preferences.txt, and it must be in the Notes folder. For details, see "Preference Settings" (page 22).
- **.link note:** A note used as an alias to a note or media file. Its name must end with the extension `.link`. For details, see "Linking From Multiple Menu Items" (page 49).
- **.linx note:** A note used to specify a menu, particularly if the menu items are to be displayed out of alphabetical order. Its name must end with the extension `.linx`. For details, see "Creating and Arranging Menu Items to Link to Files and Folders".
- **ERRORS note:** A note used to capture the results of the automatic debugging facility provided by the Notes feature. For details, see "Checking Notes for Link and Tag Errors" (page 23).

Preference Settings

The Notes feature supports a group of preference settings that you can set to modify specific aspects of your presentation:

- `HideAllTags`, to ensure that no markup tags in a note are displayed.
- `LineWrap`, to specify how LF and CR characters in notes are handled.
- `NotesOnly`, to restrict the user's access to just the Notes feature.
- `NowPlaying`, to suppress or allow display of the Now Playing screen while audio files play. (Does not apply for videos.)
- `ShowBodyOnly`, to force the display of only part of a note's content.

You set a preference by including both its name and its setting as attributes in a <META> element, as in this example:

```
<meta name="HideAllTags" content="true">
```

You must include the quotation marks enclosing the name and the setting as shown, with no spaces. Preference tags are not case sensitive, but it's a good idea to keep them consistent within your files.

To set a preference so that it is global to your presentation, add a file named `Preferences.txt` to the Notes folder, and edit the file to include the appropriate <META> element for that preference. A global preference setting is in effect unless it is overridden by a local preference setting.

You can set local preferences for any note file by including valid preference tags in that file. For that note only, the individual local preference setting overrides the equivalent global preference setting. When a global preference setting is not specifically overridden locally in a note, the global preference setting is used.

If multiple tags for the same preference are included in a single note, the last such setting parsed will be used for the entire note.

You can display the preferences for any note with the <SHOWPREFERENCES> tag. All preferences are displayed. If any local preference overrides a global preference, the local value is displayed; otherwise the global value is displayed.

Here are some rules for setting iPod preferences:

- You can set one or several preferences; you don't have to list them all.
- The only values that are valid for preferences are true and false.
- All preferences default to false except for NowPlaying, which defaults to true.
- If LineWrap is false, LF and CR characters in notes are respected. Mac, PC, and Unix style returns are treated equally. If LineWrap is true, LF and CR characters are ignored and only <P> and <BR> tags create new lines.
- ShowBodyOnly displays only the note text enclosed within <BODY> and </BODY> tags, if present. If <BODY> tags are not present, all note text is displayed.
- HideAllTags removes all <> style tags before displaying note text, including tags that the iPod doesn't recognize. By default, HTML comments and all tags that the iPod does recognize are always removed before displaying a note.
- NowPlaying controls whether the Now Playing screen appears after selecting a link to a song. It has no effect on videos.
- NotesOnly, also called museum mode, causes the iPod to go to the Notes screen on startup and prevents the user from exiting the Notes feature. This lets you create custom or restricted user interfaces for special purposes. NotesOnly can be set only in the global Preferences.txt file, not in individual note files.

If the Preferences.txt file contains a <TITLE> tag, the top level view uses that title. If the Main.linx file also contains a <TITLE> tag, it overrides the title in the Preferences.txt file.

Checking Notes for Link and Tag Errors

After any change or addition you make to your presentation, you should test for any problems that may have been introduced. To save you the labor of manually verifying your note files, the Notes feature can automatically check each note for errors.

Any note containing the <ERRORS> tag will have its entire contents replaced by a report of the errors found while parsing the note files. You only need one note containing the <ERRORS> tag to see all the errors in all note files.

Various types of errors are reported, including badly formatted tags and dead links (links which specify a non-existent file).

Text Encoding

By default, the text in all note files is considered to be encoded in Latin1, and text in HFS iPods to be MacRoman, unless the iPod language is set to Japanese, Korean, or Traditional or Simplified Chinese, in which case all note file text is assumed to be in that encoding.

You can tag a note file as having a different encoding by using this format:

```
<?xml encoding="MacJapanese"?>
```

Put the encoding tag at the top of the file, before any non-ASCII text. Otherwise a null character in non-ASCII text may prevent the parser from getting to the encoding tag. Only one encoding tag is allowed per file. Encoding tags are not case sensitive.

The iPod supports the following text encodings, which you may specify using any of the names listed:

Encoding	Names
Latin1	iso-8859-1, Latin-1
MacRoman	x-Mac-Roman, Mac, Macintosh
MacJapanese	x-Mac-Japanese, Mac-Japanese, MacJapanese, Shift-JIS, Shift_JIS
Traditional Chinese	x-Mac-Chinesetrad, Mac-Chinesetrad , BIG5, CN-BIG5
Simplified Chinese	x-Mac-Chinesesimp, Mac-Chinesesimp, EUC-CN
Korean	x-Mac-Korean, Mac-Korean, EUC-KR
UTF8 Unicode	UTF8, UTF-8
UTF16 Unicode	UTF16, UTF-16, UCS2, Unicode

Notes: Some of the multiple encoding names listed above do not actually specify identical encodings, but they are treated as identical. For instance EUC-CN is not exactly the same as Simplified MacChinese, but both are rendered as Simplified MacChinese on the iPod. The equivalence works for virtually all characters.

Don't put null characters in Latin1, MacRoman, or UTF8 text, because these encodings use null as a string terminator. If you do, the text will be truncated at the null character.

You should be aware of the following points:

- UTF8 and UTF16 Unicode can also be specified with a byte-order mark (BOM). Byte-swapped (little endian) UTF16 files are supported, but only with a BOM and not with an encoding tag. TextEdit adds a BOM when saving UTF16 files, but not when saving UTF8 files. BBEdit displays the file encoding whether or not it has a BOM, and has options to save it with or without a BOM.
- If the encoding tag and the BOM disagree, the encoding tag overrides the BOM. Encoding tags are not case sensitive.
- The only way to display multiple encodings in the same note is to use Unicode.
- Only one encoding tag is allowed per file. The encoding tag must be placed at the top of a file, before any non-ASCII text. Otherwise, a null character in non-ASCII text may prevent the encoding tag from being read.
- Don't put null characters in encodings that use null as a terminator, such as Latin1, MacRoman, and UTF8. Otherwise, the text will be truncated at the null character.

Media files

iPod's multimedia capabilities allow you to provide a rich, engaging user experience by incorporating media files in your presentation. iTunes, iPod, and the Notes feature support specific media file formats and standards.

The Notes feature currently supports four types of media files:

- photos
- songs and other audio files
- graphics used as album cover art
- videos

Most media files are accessible to the Notes feature if they are in the iTunes library on the iPod. Photos, however, must be stored in JPEG format in the Notes folder hierarchy to be used in a Notes presentation.

Adding a media file to your presentation can be quite simple:

1. With your iPod connected to your computer, ensure that the file is stored on your iPod as described above.
2. Create a note file.
3. Edit the note file to add a link to the media file as described in "Linking to Media Files" (page 45).
4. Add the edited note to your presentation by copying it into the Notes folder hierarchy.

Preparing Media Files

The minimalist approach outlined above is quick and easy, but it can limit the appearance and quality of your presentation. To ensure the appropriate level of quality for the media content in your presentation, you will need to make choices about the way content is stored and processed in media files. A commitment to higher quality requires a more involved process:

1. Record and edit the audio or video content you want to create for iTunes and iPod. See"Creation Tools" (page 26) for more information.
2. Compress the files for optimal storage and delivery. Choose the file format that suits your needs, balancing audio/video quality with file size. See "Media File Formats" (page 35) for more information.
3. Add the file to your library or Notes hierarchy, as appropriate.
4. Where appropriate, use iTunes to add metadata such as images, lyrics, detailed descriptions, author, and copyright information to the file. See "Adding Metadata to a Media File" (page 27) for details.
5. Edit a note file to add a link to the media file (as described in "Linking to Media Files" (page 45)).

6. Add the edited note to your presentation.

7. Test the updated portion of your presentation.

After testing, if you intend to publish through the iTunes Store, iTunes U, or some other distribution vehicle, you should test that the distribution process works satisfactorily.

Creation Tools

There are many tools you can use to create your audio and video content. This section briefly describes some of the applications you might use. For in-depth instructions, see the manual that comes with the application.

QuickTime Pro

While QuickTime is installed on every Macintosh, you must purchase a registration code to gain access to its authoring features. With the full-featured version, called QuickTime Pro, you can create and edit video and audio content. After creating your content, you can use various export options to choose from a number of different file formats. Some options, such as exporting to iPod or to MPEG-4 cause the content to be compressed.

iMovie HD

You can follow the steps in the iMovie HD Getting Started manual to automatically transfer digital video from your camcorder, your Macintosh, and a variety of other devices to iMovie HD, edit the clips, add transitions and a title, and lay down a soundtrack. After creating your movie, you can choose iPod from the Share menu to export it for use on the Internet or for an iPod.

Soundtrack Pro

Soundtrack Pro is a professional multitrack sound recording and editing application with built-in effects and filters, such as audio cross dissolve, normalization of audio level, and equalization. After recording the audio, export to AIFF. You can then bring it into iTunes to compress it.

GarageBand

GarageBand is a multitrack capture tool and editor for both audio and MIDI sound. With GarageBand, you can capture audio from input sources and use effects and filters to enhance the quality of the audio. GarageBand 2 is a component of the iLife application suite from Apple and may already be installed on your computer. Export the file, and bring it into iTunes to compress it.

Compressing Your File With iTunes

Some applications, including GarageBand and Soundtrack Pro, can output a file in the uncompressed AIFF format. One way to determine whether the file is really uncompressed is to choose File > Get Info in iTunes.

Note: Compressing a file that is already compressed can have unpredictable results, but will almost certainly lower the quality of the content.

To deliver the file as a podcast or to publish the content to iTunes U, it must be compressed to a supported format. You can use iTunes to compress an uncompressed audio file. To get the file into the iTunes Library, choose File > Import. To convert the uncompressed file to AAC, select the file in the Sources list, then choose Advanced > Convert Selection to AAC.

Adding Metadata to a Media File

An audio or video file contains data used to create the sounds we hear or the video we see when the file is played. But it also may contain information about that data—the name of the person that created the file, length of the file, title of the file, description, and so forth. These bits of information are metadata.

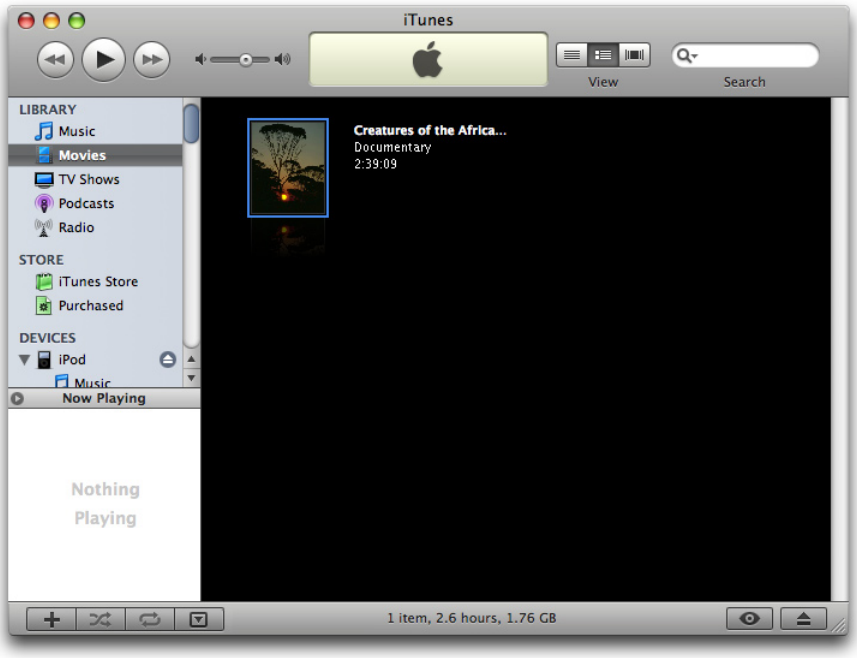
Metadata is useful for several reasons:

- The iTunes and iPod user interface is built in part from the metadata. For example, clicking on the Artist category would yield nothing if the artist name hadn't been entered as metadata.
- It makes browsing and searching much more efficient and helpful to your audience. Listeners can search by the information in the Artist field, search by your groupings, or any other category.
- It supports and reinforces the content. For example, in an educational context, metadata meets the needs of different learning styles. There are visual learners and those who learn better by reading text. A speech or song could include the text or lyrics entered as metadata so that listeners could read along as they heard the audio. Moreover, the metadata could include a picture of the speaker, helping listeners connect emotionally to the voice.

It is important to include some embedded metadata in the file. iTunes and many other applications can display and use this metadata for cataloging as well as search and retrieval functions. If you add metadata in iTunes, the metadata stays with the content even if it is moved.

In iTunes, you can view the metadata for a file in an Info window. Select a media type such as Music or Movies from Library, select a song or movie (as shown in Figure 2-1) and choose File > Get Info.

Figure 2-1 Selecting a movie



There are six metadata panes in the Info window: Summary, Info, Options, Lyrics, Artwork, and Video. All of these are supported for video files. All but the Video pane are supported for audio files.

Summary Metadata

Figure 2-2 and Figure 2-3 display the Summary pane for viewing metadata associated with the media file. Most of the information displayed in the Summary pane is determined by inherent characteristics of the file. Although you cannot edit data directly in the Summary pane, you can change values such as the name of the song (or video), the artist, and so forth in the Info metadata pane (described below) or in the main iTunes window.

Figure 2-2 Song Summary metadata pane

Figure 2-3 Movie Summary metadata pane

Info Metadata

Figure 2-4 shows metadata that identifies the media file. Most of the information displayed in this pane can be entered automatically by retrieving it in iTunes from online resources such as the Gracenote CD database (CDDB). You can, however, use the Info pane to change or enter all of this data yourself.

Figure 2-4 Info metadata pane

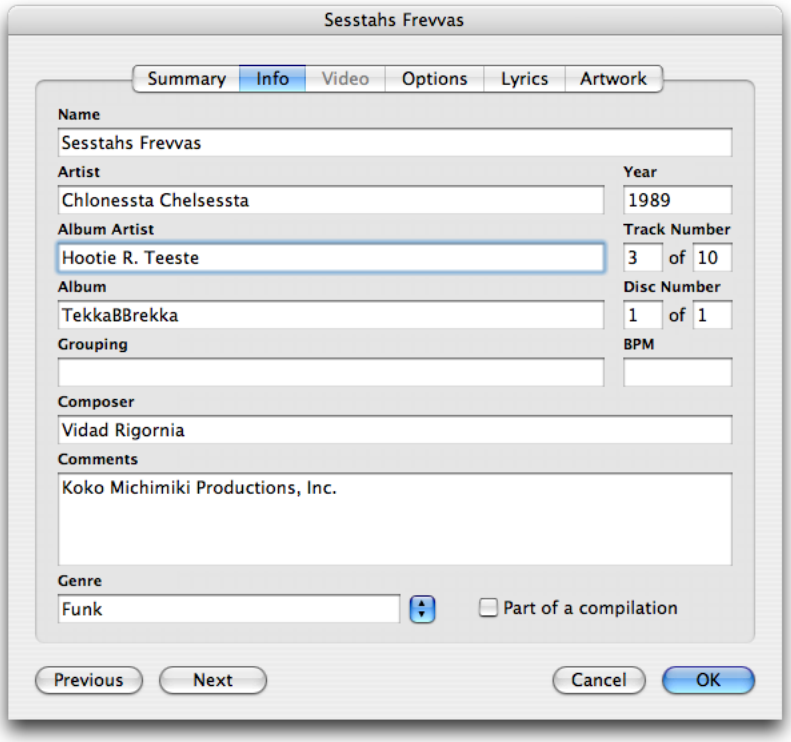


Table 2-1 describes the editable fields in the pane.

Table 2-1 Info pane metadata fields

Field	Possible Uses
Name	Name of the article, lecture, podcast, episode, and so on.
Album Artist	Author, lecturer, or source of the content
Year	Year the content was published/created
Track Number	Ordinal track number on the album/CD.
Album	Name of the podcast series, lecture series, course name, or chapter name/number
Disc Number	Ordinal disc number in a multiple-disc album/CD set.

Field	Possible Uses
Grouping	Organize your content by theme (such as all your lectures on Italian comedic operas as opposed to the Italian romantic operas). It might be helpful for your listeners to sort by grouping.
BPM	Beats per minute.
Comments	Add a brief description of your content, add a web site reference, or your email address. Make notes about the content that your listener might need to know. For example, "This podcast contains content not suitable for children under 12." Or, "This recording contains lectures 1 and 2."
Genre	Broad category, for example, by subject (such as food), by publisher, by organization (such as a university name), or by type (such as podcast) Note: Some iTunes users create smart playlists using the Genre category to transfer content automatically to the iPod.
Part of a compilation	Identify this as a track from a compilation disc, such as a soundtrack or "best of..." album.

Options Metadata

Figure 2-5 shows settings that you can specify to affect the playback of the media file.

Figure 2-5 Options metadata pane

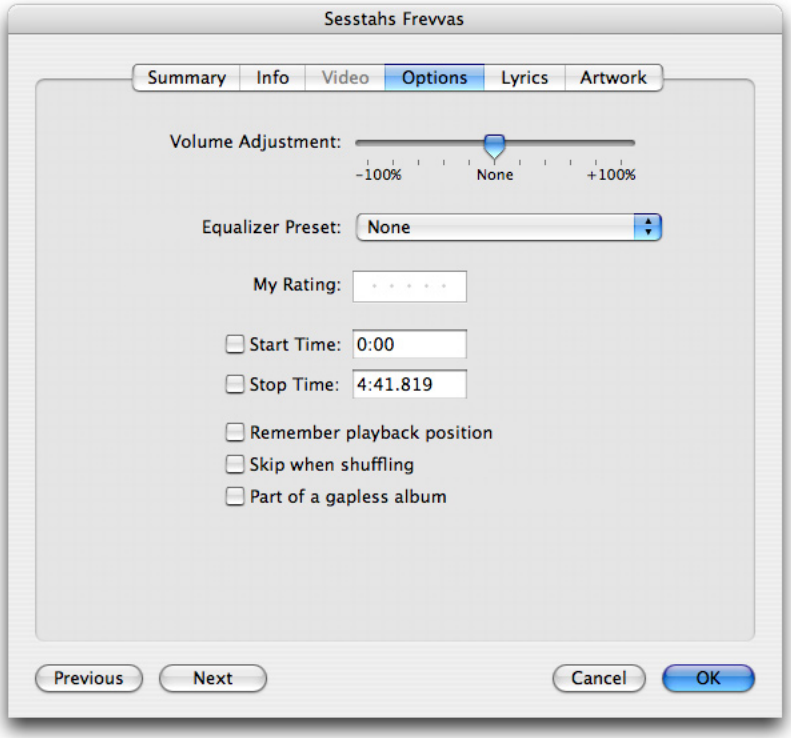


Table 2-2 describes the settings you can adjust in the Options pane.

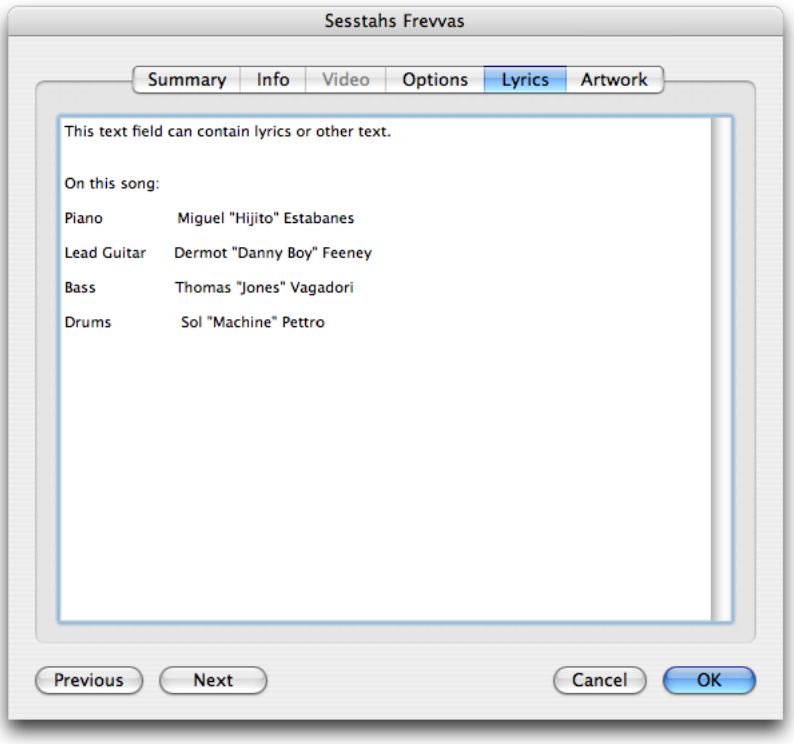
Table 2-2 Options pane settings

Field	Possible Uses
Volume Adjustment	Adjust the relative volume setting for this audio file. Used to even out volume settings across a library.
Equalizer Preset	Pick a set of equalizer settings to emphasize or downplay frequency ranges for this audio file.
My Rating	Set your own rating for the content on a 1 to 5 scale to affect frequency of play.
Start Time	The time within the file's duration at which you want the audio to start playing.
Stop Time	The time within the file's duration at which you want the audio to stop playing.
Remember playback position	Retain the playback position to enable starting at the point of interruption.
Skip when shuffling	Suppress playing this media file in shuffle mode. Useful for avoiding playback of non-music audio files, for example.
Part of a gapless album	Play this file without the usual delay of about one-half of a second.

Lyrics Metadata

Figure 2-6 shows the Lyrics pane, which allows you to enter lyrics, notes, or any textual content.

Figure 2-6 Lyrics metadata pane



For podcasts and other content, you could include a transcript to support hearing disabled learners, a summary, a list of support resources, text for a speech, text of a poem, or other information.

Artwork Metadata

Figure 2-7 shows the Artwork metadata pane, which allows you to associate one or more graphics files with the media file. The image is displayed in iTunes in the Album art window when the content is selected. The image is also shown on an iPod that can display photos while the audio is being played. Typically the artwork consists of a single CD or DVD cover graphic, and iTunes can be set to automatically download such graphics. Note, however, that additional alternate graphics may be stored for use by devices with different display capabilities.

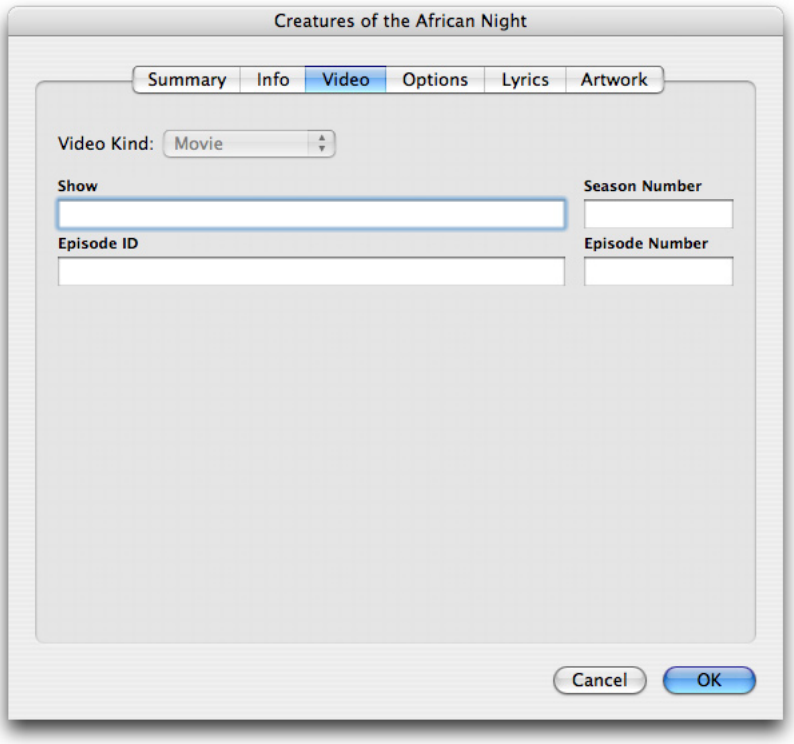
In the case of an audio museum tour, for example, you might explicitly associate a picture of a sculpture or painting with the media file. To do so, you simply drag the file's icon into the graphics window in the pane, or click Add to browse the file sytem to locate the file.

Figure 2-7 Artwork metadata pane

Video Metadata

Figure 2-8 shows the Video pane, which allows you to enter video-specific data to further identify the media file.

Figure 2-8 Video metadata pane



Media File Formats

To post materials on iTunes for downloading to iPods, you need to get the materials (audio, video, text, podcasts, among others) into compatible file formats. Understanding file formats and how they compare with each other will help you decide the best way to prepare your materials.

iPod and iTunes support the following file formats:

- AA (audible.com spoken word)
- AAC (Advanced Audio Coding)
- AIFF (Audio Interchange File Format)
- Apple Lossless (a high-quality compressed format)
- H.264 (video)
- MP3
- MP3 Variable Bit Rate (VBR)
- MPEG-4 (video)
- WAV

iPod does not support the following formats:

- WMA

- MPEG Layer 1
- MPEG Layer 2 audio
- audible.com format 1

One of the factors to keep in mind when preparing your materials is file size. Depending on the size of the file (audio and video files tend to be very large), you might want to choose a format that compresses the file. Compressed files download faster and take up less disk storage space. The tradeoff is that higher compression typically results in lower sound quality.

Note: All the file formats used in posting and downloading to and from iTunes can be produced by commonly available codecs. The term *codec* is an acronym for compressor/decompressor. Codecs convert an audio or video signal into a compressed digital form for storage or transmission and then back into an uncompressed signal for replay.

The following table summarizes the file formats available and lists when and why you might choose one over another.

File Format	Description	Usage
Audio		
AAC (Advanced Audio Coding)	A modern audio file format. At any given bit rate, AAC delivers higher quality audio than other older MP3 formats. AAC provides almost twice the clarity of MP3 audio at the same bit rate with equal or smaller file sizes. File size: usually less than 1 MB for each minute of content.	Compatible with iPods, but AAC is less widely supported by other devices. However, with its increased quality at a wide range of data rates, AAC audio is gaining wide adoption in the marketplace. Use when you want CD quality audio in a highly compressed file.
MP3	A compressed audio format. It is an older format, so quality is not as high as with newer formats. File size: About 1 MB for each minute of content.	Compatible with a wide range of hardware and software.
MP3-VBR (Variable Bit Rate)	An enhanced MP3 format that compresses the audio at varying rates based on the content. The compression is determined moment by moment; for example, silence and simple sounds compress much more than complex sounds such as reverberation.	Unless the entire audio composition is complex, MP3 VBR provides better overall sound quality without making the file size too large
Protected AAC	A file format that is protected with FairPlay, a DRM (Digital Rights Management) system from Apple.	Apple uses Protected AAC to encode copy-protected music titles purchased at the iTunes Store. Note: iTunes U does not add copy-protection to files or podcasts you post.

AIFF (Audio Interchange File Format)	File format developed by Apple for storing high-quality digital audio and musical instrument information. Uncompressed, CD-quality audio file format. File size: about 10 MB for each minute of content.	Use for CD-quality audio when you don't care about file size. Can be played in more applications than Apple Lossless. If you plan to burn high-quality audio CDs with the content, you should use the Apple Lossless or AIFF format for the best results.
Apple Lossless	CD-quality equal to AIFF and WAV formats in a smaller file size. Apple Lossless compresses CD audio to 50% of its original size (MP3s compress to 10% of original) File size: 5 MB for each minute of content.	Use for CD-quality audio when you need a smaller file size than AIFF or WAV, but not as compressed as AAC or MP3. Can be played in iTunes, applications that support QuickTime, and iPod models with a dock connector. If you plan to burn high-quality audio CDs with the content, you should use the Apple Lossless or AIFF format for the best results.
WAV	Native digital audio format in Windows. Uncompressed, CD-quality audio file format. File size: about 10 MB for each minute of content.	Use primarily with Windows computers that are not using iTunes, or computers that do not have MP3 software.
AA (formats 2, 3, and 4)	Developed by audible.com for the spoken word, primarily audio books.	Use for spoken word and audio books
Video		
MPEG-4 Video	Defined by MPEG (Moving Picture Experts Group) to deliver DVD- quality video at lower data rates and smaller file sizes than MPEG- 2. (MPEG-2 was defined for DVD video; MPEG-4 was defined for Internet delivery of digital media.) Based on the QuickTime architecture.	Use to create content in a simple, cost-effective "author once, play anywhere" model. You don't have to manage the same material in multiple formats. Works with a wide variety of devices, including mobile phones and digital still cameras.
H.264	The next generation video compression technology in the MPEG-4 standard. The result is crisp, clear video in much smaller files saving in bandwidth costs over previous generations of video formats. For example, H.264 delivers up to four times the resolution of MPEG- 4 at the same data rate.	Use when you want very high quality across the broadest range of bandwidths from 3G mobile devices to iChat AV for video conferencing. Because H.264 is now an integral part of the QuickTime 7 architecture in Tiger, QuickTime- based applications — including iChat AV, Final Cut Pro HD and other third-party applications — can take full advantage of this new video format.

PDF booklets	PDF stands for Portable Document Format.	Used for text-based books or articles. PDF extension required. The PDF format does not support metadata.

Table 2-3 describes the standard video file formats supported by iPod and the Notes feature.

Table 2-3 Supported video file formats

Standard	Description	Video			Audio	
	Max data rate	Resolution (pixels)	Frame rate	Max data rate	Sample rate	
H.264	Low-complexity version of the H.264 baseline profile with AAC-LC audio	1.5 Mbps	640 X 480	30 fps	up to 160 kbps	48 kHz
	Baseline Profile up to Level 1.3 with AAC-LC audio	768 Kbps	320 X 240	30 fps	up to 160 kbps	48 kHz
MPEG-4	Simple Profile with AAC-LC audio	2.5 Mbps	640 X 480	30 fps	up to 160 kbps	48 kHz

Deciding which audio format to use

The most common Internet audio file formats you might encounter are AAC and MP3. Both offer these benefits:

- Compatible with iTunes and iPods (even listeners who do not have iPods can still listen using iTunes).
- Support for bookmarks (for example, the listener can hear part of a lecture, set a bookmark, and restart the lecture where it left off).
- Support for chapters (your listeners can jump to a specific section of your content). An enhanced podcast can be divided into chapters, allowing listeners to quickly navigate to specific parts of the podcast or content. Each chapter can have an associated piece of artwork.
- Support for images (you can add an image—for example, album art or a photograph of the speaker).
- Ability to incorporate Web links and pictures set to appear at certain times during playback of audio books and podcasts (in higher-end iPods).

Although MP3 is compatible with a wide range of hardware and software, the AAC format offers additional advantages, especially when creating content for delivery:

- Produced by a newer codec that uses more advanced technology.
- Provides better compression than MP3, yielding higher quality despite smaller file sizes.

Note: You can choose to make your content available in both formats (MP3 and AAC), or your listeners can use iTunes to convert AAC files to MP3 files.

Organizing Your Presentation

Organizing Your Content

Once you have some content in note files, you can start to organize it. This typically includes building a folder hierarchy to contain the text content and arrange it into a structure for logical presentation. What may not be obvious, though, is that your folder hierarchy gives the Notes feature all it needs to allow the user to navigate through your presentation.

Once you're satisfied with the arrangement of folders and notes, you can further enhance and refine your presentation by adding explicit links between the parts of your presentation.

Using Folders to Organize the Interface

iPod displays the folder hierarchy in the Notes folder, allowing you to organize your notes into categories. Folders are shown on iPod as menu items in alphabetical order.

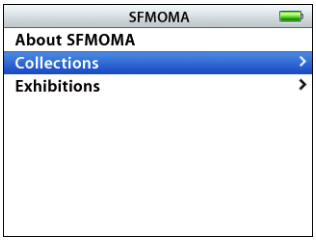
As a practical matter, you should limit the number of notes in any single folder, keeping in mind the user's experience scrolling through them.

Invisible files and folders cannot be used by the Notes feature. All invisible files in the Notes folder hierarchy are ignored by the Notes feature.

To use folders to organize notes into categories:

Create folders inside the Notes folder, and then put notes or more folders inside them.

In the example from page 3, a text file named "About SFMOMA" and folders named "Collections" and "Exhibitions" were created and stored inside the Notes folder to create this interface:

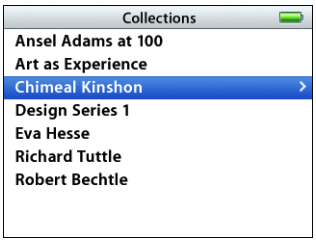


In this example, a “Preferences.txt” file with the tag:

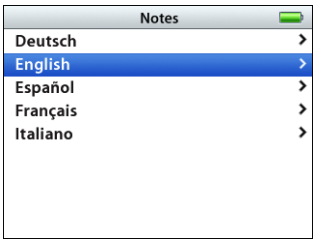
<TITLE>SFMOMA</TITLE>

was created in the Notes folder to change the screen title from “Notes” to “SFMOMA.”

More folders were created and placed inside the “Collections” and “Exhibitions” folders to further break down the categories:



Tip: If you have content in multiple languages, you can put a folder named for each language in the Notes folder, and then place translated content in each language folder.



For information about organizing menu items in any order or creating menu items that link directly to notes or audio files, see Figure 1-1 (page 10).

Linking to Notes and Folders

Once you’ve organized your content, you can enrich the user experience by using links to improve and expand the user’s ability to navigate through your content

Linking to a Note

You can link from a note to any other text note stored within the Notes folder.

In a note file, to link to another note, type an anchor element that points to another note file. Such an anchor element might look like this:

```
<A HREF="note file"> Link to another note </A>
```

In this example:

`<A>` signifies the beginning of the link or *anchor* element.

`HREF="note file"` is a link tag.

`note file` is the name of the file the link points to (substitute your own filename).

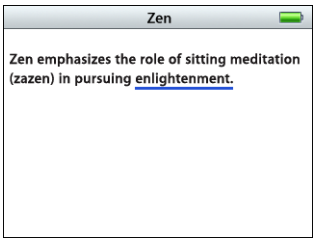
`Link to another note` is the text a user sees underlined in the note on the iPod display (substitute your own text).

`</A>` signifies the end of the *anchor* element.

For example, the following text:

Zen emphasizes the role of sitting meditation (zazen) in pursuing `<A HREF=”Show Me the Way”>enlightenment</A>`.

causes a sentence with the word *enlightenment* to be displayed as an underlined link in the note on iPod:



When a user reading the note scrolls to the “enlightenment” link and clicks the Center button, the note file “Show Me the Way” is displayed. If more than one link is visible, the active link is blue (on an iPod with a color display) or black, and the inactive links are gray.

Note: The link is checked to ensure that it is syntactically correct. It is not tested to verify that the linked file actually exists.

When a user reading the note scrolls to the “enlightenment” link and clicks the Center button, the note file “Show Me the Way” is displayed. If more than one link is visible, the active link is blue (on an iPod with a color display) or black, and the inactive links are gray.

Linking to a Note in Another Folder

You can link from a note to another note in the Notes folder or in any of its subfolders. You can’t link to notes outside the Notes folder.

To indicate the location of a linked note, you can use a link tag with an **absolute reference** or a **relative reference**. An absolute reference shows where the linked note is in relation to the Notes folder. A relative reference shows where the linked note is in relation to the folder that contains the original note.

To create a link with an absolute reference:

In a note, type an anchor element with a link tag using a path starting in the Notes folder.

A tag with an absolute reference has a path that starts with a slash:

```
<A HREF="/note_file">Link to another note</A>
```

If the linked file is in a subfolder, separate the items in the path with a slash:

```
<A HREF="/folder/note_file.txt">Link to another note</A>
```

Note: You can also use backslashes and colons instead of slashes in file paths. See "Using Alternative Path Delimiters in Filenames" (page 50).

So for example, the link "Show me the Tao" in the line

```
<A HREF="/About Taoism.txt">Show me the Tao</A>
```

points to the note file "About Taoism.txt" inside the Notes folder.

And the link "Confucius says" in the line

```
<A HREF="/Social Philosophers/About Confucius">Confucius says</A>
```

points to the note file "About Confucius" inside the "Social Philosophers" folder, which is inside the Notes folder.

To create a link with a relative reference:

In a note, type a link tag with a path starting in the folder that contains the note.

A tag with a relative reference has a path starting with the name of a folder or file instead of a slash:

```
<A HREF="Show Me the Way">enlightenment</A>
<A HREF="subfolder/note.txt">Link to another note</A>
```

In the first example, the link "enlightenment" points to the note "Show Me the Way" inside the same folder as the note with the link. In the second example, the link "Link to another note" points to the note "note.txt" inside the folder "subfolder," which is inside the same folder as the note with the link.

Note: If you use a relative reference, you can only link to notes in the folder that contains the original note, or in its subfolders. To link to a note in a folder outside the folder with the original note, you must use an absolute reference.

Linking to a Folder

You can link to any folder in the Notes folder or any of its subfolders.

To create a link from a note to a folder:

Create a link tag pointing to a folder, using the folder's name.

For example, the link tag in this anchor element

```
<A HREF="/folder1/folder2">Link to folder2</A>
```

creates a link to the folder `folder2`, which is inside `folder1`, which is inside the Notes folder. When a user chooses the "Link to folder2" link, a list of notes and folders inside `folder2` is displayed.

You can link to the Notes folder itself using either of two link tag formats. The first uses the familiar root folder pathname format of a single slash, as in this example:

```
<A HREF="/">Link to Notes folder</A>
```

The second uses the uses the URI file scheme format, as in this example:

```
<A HREF="file:///">Link to Notes folder</A>
```

Note that the file reference requires three slashes; the first two are the URI scheme separator and the third is the same root folder pathname as in the previous example. A backslash (\) could be used instead of the slash(/) as the root folder pathname.

Linking to Media Files

You can link from a note to photos and songs, to audio and video files, or to a playlist or other group of songs or videos. You can show an image when an audio file plays, and control whether the Now Playing menu shows while audio plays.

Linking to Graphics As Cover Art

Using iTunes, you can easily attach a graphic to an audio file as cover art. For details, see "Adding Metadata to a Media File". The Notes feature automatically provides support for users to display such graphics by pressiing the Center button twice while the Now Playing screen is displayed.

Linking to a Photo

You can link to a photo in much the same way that you link to a folder. The photo must be stored in the JPEG file format (with the `.jpg` or `.jpeg` extension) in the Notes folder (the top folder in the Notes hierarchy).

To link to a photo, create an anchor element with a link tag pointing to the filename of the JPEG file, as in these examples:

```
<A HREF="/vacation">Check Out the Grand Canyon!</A>
```

```
<A HREF="file://vacation">Check Out the Grand Canyon!</A>
```

When the link is clicked, the Notes feature automatically detects that the file is a photograph. It decodes the image, scales it (if necessary) to fit the iPod screen, and displays the image centered on a white background below the status bar.

Linking to a Song or Other Audio File

You can link to any song or other audio file on iPod. When a user chooses the link, the song plays. By default, the Now Playing screen appears when audio plays. (For instructions on setting iPod to continue displaying the note when a song plays, see "Setting iPod to Continue Displaying a Note When Playing Audio" (page 52).)

To link to a song or audio file, first load the file onto your iPod using iTunes. Then in the note in which you want the link, create an anchor element with a link tag pointing to the song (see the example below). Linking to a song or audio file is similar to linking to folders and photos, except that you use the iTunes name instead of the file's pathname.

In this example:

```
<A HREF="song=My Way"> Link to My Way </A>
```

the link “Link to My Way” links to the song “My Way.”

In this example:

- `<A HREF=”song=...”>` signifies that the tag is an instruction to create a link to a song or audio file stored on the iPod.
- *My Way* is the name of the song, as it appears on iPod, to which the link points (substitute the name of the song you want to link to)

When creating a link to a note, you must type the note’s filename extension (usually “.txt”) if it has one. However, when linking to a song, type the song’s name just as it appears on your iPod. Don’t type the song’s filename extension.

Important: Use the name exactly as it appears in the iTunes Name column, not the file name as you see it in your file system.

If you want to attach a graphic file to an audio file, in the iTunes source list, select the audio file on the iPod and drag a still image to the artwork box in the lower left corner of the iTunes window. (If you don’t see the artwork box, click the “Song artwork and video viewer” button.)

Note: If there is more than one song with the same name on your iPod, you can rename one of the songs in iTunes and then link to it.

Linking to a Group of Songs

You can link to a playlist, all songs by a particular artist or composer, all songs on an album, or all songs in a particular genre. When a user clicks the link, the songs play in order. If the iPod is set to shuffle, they play randomly.

To link to a group of songs:

Create a link tag specifying the group of songs, following the examples below:

```
<A HREF="ipod:music?playlist=AmbientX"> Link to AmbientX playlist </A>
```

In the above example:

`HREF="iPod:music?` signifies that the tag is an instruction to create a link to a category of song.

`playlist` is the category of song (substitute your own category).

`AmbientX` is the name of the playlist on iPod (substitute your own playlist).

`Link to AmbientX playlist` is the text a user sees underlined in the note on the iPod display (substitute your own text).

Here are examples of links to other groups of songs:

```
<A HREF="ipod:music?genre=rock">Link to rock music</A>
<A HREF="ipod:music?artist=Radiohead">Link to Radiohead</A>
<A HREF="ipod:music?composer=Beethoven">Link to Beethoven</A>
<A HREF="ipod:music?album=Pinkerton">Link to Pink</A>
```

You can combine instructions to refine the group of songs played by adding "&" followed by another instruction. Here's an example:

```
<A HREF="ipod:music?genre=rock&artist=U2">Combo</A>
```

Music identifiers cannot contain an unencoded ampersand. For example, these links do not work:

```
<A HREF="ipod:music?genre=country&western">Link to genre</A>
<A HREF="ipod:music?artist=hall&oates">Link to artist</A>
```

To include an ampersand in an identifier, you must encode it as described in "Encoding Special Characters In Links" (page 50).

Linking to a Video

You can link to a video in much the same way as you link to a song. When a user chooses the link, the video plays on the iPod display. By default, the Now Playing screen appears when audio plays. (For instructions on setting iPod to continue displaying the note when a song plays, see "Setting iPod to Continue Displaying a Note When Playing Audio" (page 52).)

To link to a video, first load the video file onto your iPod using iTunes. Then in the note in which you want the link, create an anchor element with a link tag pointing to the video (see the example below). As with a link to a song or audio file, you must use the name as it appears in iTunes instead of using the file's pathname.

In this example:

```
<A HREF="video=My Way"> Link to My Way Music Video</A>
```

the link "Link to My Way Music Video" links to the video "My Way."

In this example:

- `<A HREF="video=...">` signifies that the tag is an instruction to create a link to a video file stored on the iPod.
- *My Way* is the name of the video, as it appears on iPod, to which the link points (substitute the name of the video you want to link to).

Remember, when linking to a video, type the its name just as it appears on in iTunes. Don't type the path or the filename extension. If you need to change the name of the video (for example, if there is more than one video by the same name on your iPod), you can rename one in iTunes and then link to it.

Note: The NowPlaying preference setting is not applicable to video, because displaying the Now Playing screen would interfere with displaying the video.

Linking to a Group of Videos

You can link to a group of videos almost exactly as you would link to a group of songs, except that you substitue the word *video* for the word *music* in a tag. Just as with audio files, you can specify criteria such as playlist, artist or composer, album, or genre. When a user clicks the link, the videos play in order. If the iPod is set to shuffle, they play randomly.

To link to a group of videos, create an anchor element with link a tag specifying the group of videos, following the examples below:

```
<A HREF="ipod:video?playlist=AmbientX"> View AmbientX videos </A>
```

In the above example:

`HREF="iPod:video?` signifies that the tag is an instruction to create a link to a category of video.

`playlist` is the category of video (substitute your own category).

`AmbientX` is the name of the playlist on iPod (substitute your own playlist).

`View AmbientX videos` is the text a user sees underlined in the note on the iPod display (substitute your own text).

Here are examples of links to other groups of videos:

```
<A HREF="ipod:video?genre=rock">View rock music videos</A>
<A HREF="ipod:video?artist=Radiohead">View Radiohead videos</A>
<A HREF="ipod:video?composer=Beethoven">View Philharmonic playing Beethoven</A>

<A HREF="ipod:video?album=Pinkerton">View Pinky vids</A>
```

You can combine instructions to refine the group of videos played by adding "&" followed by another instruction. Here's an example:

```
<A HREF="ipod:video?genre=rock&artist=U2">Combo</A>
```

Video identifiers cannot contain an unencoded ampersand. For example, these links do not work:

```
<A HREF="ipod:video?genre=country&western">Link to genre</A>
<A HREF="ipod:video?artist=hall&oates">Link to artist</A>
```

To include an ampersand in an identifier, you must encode it as described in "Encoding Special Characters In Links" (page 50).

Fine-tuning Your Presentation

Fine-tuning the User Interface

You can exercise finer control over the iPod interface by arranging the order of menu items, linking directly from menu items to audio files and folders, creating multiple menu items that link to the same item, and encoding files for different languages.

Creating and Arranging Menu Items to Link to Files and Folders

Folders and files appear in the iPod interface as menu items in alphabetical order. You can arrange menu items in any order you want by creating a `.linx` file.

Unlike menu items created using folders, menu items created using a ".linx" file can link directly to notes and audio files, as well as folders.

To control the main notes interface, you can use a special type of `.linx` file to replace the contents of the main notes screen. The file must be in the Notes folder, and it must be named `main.linx` or `index.linx`. (The names are not case-sensitive.)

To create menu items using a `.linx` file:

In a plain text file, type link tags in the order in which you want the items to be displayed.

Add ".linx" to the end of the file name (for example, `notefile.linx`).

When a user chooses the `.linx` file, the links in the file are shown in the iPod interface the same way as contents in a folder.

Linking From Multiple Menu Items

If you want multiple menu items to lead to the same item (note, folder, or song), you don't have to duplicate the item. Instead, you can use `.link` files to point to the item. Then if you want to make changes to a note's content, you only have to change one file.

In the iPod interface, ".link" files are displayed as menu items. When the user chooses a ".link" file, iPod immediately goes to the file, folder, or song specified in the ".link" file.

To create a `.link` file:

In a plain text file, type a link tag.

Add `.link` to the end of the file name (for example, `notefile.link`).

Tip: If you include the tag <TITLE>New Title</TITLE> in the `.link` file (replacing New Title with the title you want), users will see the new title in the iPod interface, and won't see the `.link` file extension.

Using Alternative Path Delimiters in Filenames

When linking to a file in another folder, the folders and file names in the path can be delimited with either a forward slash (/), backslash (\), or colon (:), as in these examples:

```
Folder/file
Folder\file
Folder:file
```

The three path delimiters are equivalent.

If a folder name contains any of these special characters, they must be preceded by a backslash. For example, a link to a file named "Meeting 10/12/06" would be represented this way:

```
<A HREF="Meeting 10\/12\/06">Link to another note</A>
```

If the first or last character of a file or folder name is a slash or backslash, even with a preceding backslash it could be ambiguous whether a character is part of the file or folder name, or a path delimiter. In this case, you should use a colon as the path delimiter.

For example, a link to a folder named "Folder\" would be represented this way:

```
<A HREF="Folder\\:note file">Link to another note</A>
```

Path names must fit in 255 characters. More specifically, they must fit in 255 UTF8 Unicode bytes, or in 510 UTF16 Unicode bytes. Some characters expand to more than one UTF8 byte or more than two UTF16 bytes, so some paths may not fit even though they would appear to. See the Unicode specification for details.

Files are not loaded if their path names are too long.

Encoding Special Characters In Links

Some characters have a special significance in URLs and are therefore not interpreted literally during URL parsing. The ampersand (&) and the percent symbol (%) are two such characters that have special significance to the Notes Feature when they occur in links.

To use these characters in a link, you must "escape" them by using what is commonly known as *URL encoding*. Simply stated, URL encoding combines a percent sign with a hexadecimal number that represents the character in the ISO Latin-1 character set, as illustrated by "`URL character encoding`".

Table 4-1 URL character encoding

Character	Name	Encoding
&	ampersand	%26
%	percent sign percent symbol	%25

You use an unencoded ampersand to refine a song selection, as described in "Linking to a Song or Other Audio File" (page 45). To use it as part of genre name (say R&B), for example, you must escape it. And because the percent sign is part of the encoding itself, it too must be escaped to be used literally.

The Notes Feature supports URL encoding of all characters in the ISO-Latin 1 character set, but only the ampersand and percent sign must be encoded.

Using HTML Character Entities In Text

The notes feature allows you to use the alpha, decimal, and hex encodings of HTML entities in text within a note. For example, you can represent an ampersand as &amp, &#38, or &#x26. This can be convenient if, for example, your content is processed by software tools that might interpret or manipulate certain special characters.

Changing History

The iPod maintains a *history stack* to retain the user's recent navigational choices. The Notes feature supports two ways for you affect the history stack to fine-tune the user's return navigation toward the main menu. You can specify that any particular note be skipped as the user is backing up toward the main menu. To do so, you add the NOPUSH tag to the link, as in the following example:

```
<A HREF="file://chooseTxtOrAud001" nopush>Read Or Listen?</A>
```

The NOPUSH tag tells the Notes feature not to *push* (or add) the link onto the history stack, in effect causing `chooseTxtOrAud001` to be ignored on the user's return. You can use this tag to avoid any screen the user shouldn't see twice. For example, `chooseTxtOrAud001` might be a note prompting the user to choose between reading a text note or listening to an audio version of it. Using the NOPUSH tag as in the example above, the user skips the `chooseTxtOrAud001` screen when returning toward the start of the presentation.

To have the user return to the top (Notes folder) level, skipping all links on the way, you can use the POPALL tag to clear the entire history stack, as in the following example:

```
<A HREF="file:///" popall>Leave Veda Rigornia</A>
```

In this example, the note is the last in a directed presentation about Veda Rigornia, infamous modern artist. Choosing this link, the user would return immediately to the top of the Notes hierarchy, possibly to choose a different presentation.

Note: The POPALL tag works only with links to the top of the Notes folder hierarchy—either to the Notes folder itself, or to the top `.linx` file (`main.linx` or `index.linx`).

Setting iPod to Continue Displaying a Note When Playing Audio

By default, the Now Playing screen appears when a user chooses a link to an audio file. You can set iPod to continue displaying the note instead, by changing the setting globally, for a single note, or for a single song link.

To set all notes so that the Now Playing screen doesn't appear when a song link is chosen:

In a plain text file, type the following line:

```
<meta name "NowPlaying" content=false>
```

Save the file as "Preferences.txt" in the Notes folder on iPod.

Note: If you already have a Preferences.txt file in the Notes folder, add the line above to the file and save it.

To set a single note so that the Now Playing screen doesn't appear when any song link in the note is chosen:

Anywhere in the note, add the line:

```
<meta name "NowPlaying" content=false>
```

To set a single song link so that the Now Playing screen doesn't appear when the link is chosen:

Add "NowPlaying=false" to the song link tag. For example:

```
<A HREF="song=My Doorbell&NowPlaying=false">My Doorbell</A>
```

Note: The NowPlaying preference setting has no effect on videos.

Document Revision History

This table describes the changes to *iPod Notes Feature Guide*.

Date	Notes
2006-11-01	Updated to clarify supported models and to fix minor graphics and text errors.
2006-10-17	New document incorporating previously published Notes feature content and information to cover features of the iPod Notes feature software, version 2.1.

Document Revision History