

# AquaMinds™ NoteTaker™

**AquaMinds™ White Paper Series 1**  
**NoteTaker™ in Education**  
December 2002



# NoteTaker™ in Higher Education

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### I. Introduction

After many years as a specialized discipline, computers now occupy a central role as an educational tool. On many campuses, personal computers are “required equipment,” and many schools boast wired living quarters, comprehensive networking throughout all their departments, and sophisticated intranets for the dissemination of course-related materials and community information.

For the most part, the software applications that support the role of computers in higher education fall into five categories:

1. Specialized tools designed to facilitate the work of particular disciplines. These might include a circuit simulation program in electrical engineering, a CAD program in architecture, translation programs for foreign languages, and so on. Some of these applications run on personal computers, but many run primarily on workstation-class machines.
2. Generalized technical tools with broad interdisciplinary application. These include statistical programs such as SAS and SPSS, analytical programs such as Mathematica, Waterloo Maple and Matlab, or technical publishing tools such as Interleaf and FrameMaker.
3. Office tools with universal applicability, such as word processors, spreadsheets, simple drawing programs, and slide show applications.
4. Media development tools for authoring and manipulating complex 2D and 3D diagrams, images, animations, sounds, and video. This category includes Photoshop, Illustrator, LightWave 3D, Final Cut Pro, Flash MX, ProTools, etc.
5. Computer-oriented tools, such as programming languages, web-design tools, etc.

Missing from this list are applications that facilitate the process of education itself. In other words, tools that help instructors design courses and prepare and disseminate

materials, or help students take notes, do research, prepare assignments and work in groups. While the standard office suite has largely fulfilled this role to date, it has evolved primarily to serve the business world, and is thus better suited to the needs of its traditional user base than those of the educational community.

## **II. NoteTaker is a Different Kind of Tool**

NoteTaker has been developed primarily for people who work with ideas and information. Rather than the largely linear flow that characterizes conventional word processing documents, NoteTaker has a number of characteristics that make it ideal for people who teach and learn.

### **NoteTaker is “outline structured”**

There is perhaps no more ideal format for working with ideas than the outline, especially outlines that permit easy “linking” between related ideas in addition to providing the inherent tree-like structure that reflects an outline’s intrinsic hierarchical nature.

Of course, in almost any application simply typing and hitting return will create a list. However, most word processing applications are not designed to make working with lists and outlines easy, particularly when it comes to rearranging the material and selectively collapsing, expanding and isolating sections for selective editing. NoteTaker, on the other hand, is structured as an outline throughout, and it possesses a variety of tools for making one’s work with outline-structured ideas simple and straightforward. For example, NoteTaker’s outline structure quickly becomes invaluable for reorganizing items from one’s lists by dragging the entries under one another to form categories, or separating these categories into separate sections of an overall notebook.

Beyond this, since there are times when one wishes to work with list entries as “headlines” and other times when it makes more sense to deal with them as complete blocks of text—often many paragraphs long—NoteTaker provides both options, as well as a mixture of the two. This flexibility facilitates the origination, review and editing of ideas at any stage in the creative process. NoteTaker can also “focus” on one part of an outline, essentially treating it as if it were the only entry on the page. This greatly simplifies concentrating on one part of a larger work.

Finally, since NoteTaker’s sections and pages are themselves logical levels of the outline, these components can be rearranged on the appropriate contents page of the notebook. Contents pages provides a view of one’s work at a high level and make it easy to restructure and rearrange the overall work as one’s thinking evolves.

## **NoteTaker is “multi-document”**

Most applications store only single documents. NoteTaker’s notebook format, in contrast, consists of sections and “pages” of arbitrary length that can contain many documents as well as many different types of material.

NoteTaker therefore makes it possible to manage an elaborate project by keeping its many component parts organized, accessible and—most importantly—“in context.” This flexibility exists even if the referenced materials are located on different computers, in off-line media, or on the Internet. In other words, since NoteTaker entries can be pointers to other files (or the “embedded” files themselves), users are free to use any application their work may require yet keep track of all their materials within NoteTaker. For projects that involve a variety of file types as well as text, NoteTaker provides a unique level of organization and coherence.

## **NoteTaker is multi-media**

The table below summarizes the various entry types supported by NoteTaker and the ways they are implemented. “Native” support means that NoteTaker supports this entry format within the notebook itself without calling an additional application; a “file link” calls another program (such as a statistics program or Acrobat Reader) to open the file in a separate window; “QuickTime” files appear and play within the notebook itself, and “image” entries refer to any graphic type supported by OS X and also display within the notebook. Supported graphic types can be scaled within NoteTaker, and collapsed to thumbnail size and re-expanded with a single keystroke.

## NoteTaker Media Types

Entry type	Native	QuickTime	Image	File link
<i>Text</i>				
Outline structured text	X			X
WP text	Via import			X
Tables	Planned		X	X
PDF				X
<i>Multi-media</i>				
Charts, graphs, pictures & diagrams		X	X	X
Animations (graphs, dynamic timelines, "evolving maps," etc.)		X		X
Movies		X		X
Interactive (via Flash)		X		X
Custom programmable (via Flash)		X		X
Voice recording	X			
Sound		X		X
<i>Web pages</i>				
URL links	Planned			X
Embedded web pages				
<i>Other file types</i>				
All				X
Import of arbitrary hierarchical XML content (for example, converted MORE to XML files)	X			
vCards	X			

As can be seen from this list, NoteTaker provides a rich environment for creating course materials, completing assignments, and performing other academic work using both NoteTaker itself and through the use of other programs. Several of NoteTaker's multi-media capabilities are particularly noteworthy:

- Voice annotations. Within NoteTaker itself, one can create voice recordings that can be retained within the notebook or used elsewhere. Voice annotation is particularly useful for conveying instructions, providing verbal descriptions of illustrations, or creating narratives to accompany NoteTaker slide shows. Experience suggests that voice annotation is often more effective than the same material delivered via text.
- Flash support. Since QuickTime supports Macromedia's Flash format, notebook entries can contain and play animations, utilize interactive charts, and employ custom-programmable mini-applications (applets) without relying on outside

applications. Flash permits the compression of a large amount of information into a small piece of “screen real-estate” because the user controls the pace and depth with which the information is displayed.

- Web pages. NoteTaker provides access to web pages in two complementary ways. Most simply, URLs can be typed, copied or dragged into NoteTaker where they will be recognized as a web link. Such links can be embedded in the body of text entries, renamed if needed, and any number of separate links can be included in the same NoteTaker entry. Double-clicking on the link will load the clicked page, launching the user’s browser if necessary. NoteTaker can thus be used to assemble relevant web pages and to go to them easily. In addition, NoteTaker can also “render and display” web pages within notebook. These pages appear as they would in the browser, but when viewed they update to the current version of the web page as does a link.

### **NoteTaker makes cross-referencing easy**

Any complex project or set of course materials contains many important relationships between its sub-parts. At a minimum, later work is often based upon previously presented materials, and the learner often benefits from returning to this material for review.

In the now-familiar hyperlink fashion, NoteTaker makes it easy to move from one part of a notebook to another (or between separate notebooks) through the use of links. In addition, the program remembers the user’s last viewed page, so it is always possible to instantly return to where you were. This makes it easy for the user to call up definitions, to review previously presented concepts, or to study in-depth explanations without interrupting the presentation flow of the material. In addition, since NoteTaker supports external links to other documents and to web pages, linkages can easily be made to materials that exist outside of the NoteTaker environment.

### **NoteTaker simplifies information retrieval and summarization**

NoteTaker utilizes a variety of ways of organizing and retrieving information in one’s notebooks:

- Categories permit the user to develop a custom list of information types. In a course outline, for example, useful categories might be “optional reading” or “exam requirement.”
- Priorities and flags provide additional, independent ways of characterizing the importance of entries.

- Date allows quick access to items based on their modification timestamp.
- Highlighting provides a way for users to visually mark entries with yellow transparent highlighting. In addition, NoteTaker allows users to automatically highlight entries by applying a variety of selection criteria such as categories, priorities, date, and the presence of specific text. Highlighted information can then be automatically collected and summarized by NoteTaker.

Since any material entered into NoteTaker can be highlighted and summarized—including file references, graphics, and URLs—it is very easy to extract one’s most important information for a particular purpose, such as exam review. (One should note, however, that since NoteTaker can only extract portions of documents stored as NoteTaker entries (as opposed to a file reference itself), there are benefits to using NoteTaker to create notes and handout materials or to import text files created elsewhere, since they can be searched and extracted selectively.)

### **NoteTaker facilitates web publishing and presentation**

The production of web-based materials is becoming a ubiquitous part of the educational process. While NoteTaker is not a web authoring environment such as DreamWeaver, it nevertheless provides an simple but powerful means for instructors and students to create web-based materials.

In fact, notebooks can be “published” in web format with a single command. The resultant web pages retain the structure and interactivity of the notebook from which they were created, graphics appear as they did in the original, and file references work as expected even if the site is uploaded to a server. (NoteTaker makes copies of referenced files and uses these copies in its html references.) If customization is required, both html and graphics files can be edited in a suitable application.

Finally, since students increasingly present their work in class in addition to handing in written assignments, NoteTaker provides facilities for making this easy to do. Clearly, NoteTaker is not intended as a replacement for a dedicated slide show program but it is an excellent “story development environment,” particularly since any multi-media object that displays within NoteTaker will display and animate on-screen during a slide show.

Since it is arguable that most of the learning that arises from presentations comes from thinking through one’s story and how it should be told, NoteTaker’s straightforward slide show features leverage its outlining and multi-media capabilities without the distractions of elaborate backgrounds, fancy transitions, or gratuitous special effects. In settings where logic and content are more important than marketing impact, NoteTaker’s “less is more” approach to presentations would appear to be well suited.

## NoteTaker makes it easier to work in groups

NoteTaker contains many features that facilitate interaction among project team members and between faculty and students. Among students and faculty, the primary need is exchanging information, particularly the distribution of course materials to students and the receipt by faculty of works in progress and completed assignments.

Among students, the requirements are considerably more complex, since they often have to work in project teams, and this requires joint brainstorming and authoring, keeping track of revisions, and facilitating review by multiple participants. NoteTaker contains features that considerably simplify working in teams especially if using e-mail to exchange and assemble notebooks.

- Using NoteTaker as an “electronic flipchart.” Perhaps the most valuable tool for the facilitation of group work is the whiteboard. However, when it comes to translating ideas generated in that free-form format to a computer-based form, an outliner is superb, especially if one can use a big screen that can be seen by the entire group. The outline format permits rapid data entry, dynamic restructuring and collapsing and expanding sections so that one can simultaneously see an overall view as well as the details. In addition, Apple’s Ink technology facilitates diagram sketching, and NoteTaker’s image support enables pasting a digital snapshot of one’s whiteboard notes into the notebook is a fast and easy way to retain a visual record of one’s work.
- Using NoteTaker for project management. NoteTaker’s To Do List feature proves to be very useful for managing project deliverables and assignments. And since it is part of the project notebook itself, all group members can keep up to date on project status and deliverables.
- Using NoteTaker as an all-in-one storage medium. NoteTaker’s multiple document capability permits all relevant files to be included in the group’s project notebook irrespective of the variety of separate applications employed or the number of revisions made. Files that are not “local” but reside on a shared file server can also be directly accessed from within each project member’s notebook without having to know the details of the file’s location.
- Ease of extract and integration of material. NoteTaker provides a number of features that ease the process of extracting pages and sections from the notebook for sharing with team members. NoteTaker folios save entered text plus file references, embedded files, and URLs, thus allowing ease of sending all relevant material to others. Integrating received material is just as easy, and is accomplished by simply dragging a folio into an open notebook.

- Tracking authorship, work status, and need for review. As projects evolve, various parts will naturally be at different stages of development. NoteTaker's extensive highlighting, flagging, prioritization and categorization features can be used to keep track of the status of the various parts of the project and the tasks to be done. Categories can be used to track authorship or revision status, and prioritization, flags and highlighting can be used to identify and automatically summarize the parts of the document that need to be changed in the next revision.
- Voice annotation for feedback and comments. In many cases, team members will find it easier and more appropriate to provide verbal feedback than to write out the same information as text. NoteTaker's voice annotation capability allows such commentary to be provided adjacent to the material to which it refers, and to categorize, prioritize, or highlight the voice annotations like any other entry to facilitate search and summarization.

### **III. Summary of Benefits**

The creation of a curricula and courses are, at the most basic level, a series of "design" projects. The logical flow to the pedagogical material is reflected as a sequence of conceptual inputs, student experiences, problems to be solved, and tests of mastery. NoteTaker's benefits throughout this process are summarized briefly below.

#### **From the instructor's perspective:**

NoteTaker is an excellent tool for designing both the overall flow of the course as well as the specific materials such as course outlines, reading lists, articles and handouts, assignments, problem sets and exams.

In addition to helping to prepare conventional courseware, NoteTaker's multimedia and voice annotation features permit an unprecedented ease of creation and delivery of media-rich instructional materials. The use of QuickTime and Flash to support animation and interactivity, and the simplicity of creating voice annotations for explanations and commentary are particularly noteworthy.

Since NoteTaker provides a means to incorporate any type of computer-based file into course notebooks, it provides a way of consolidating all of the computer and web-based materials associated with a course. NoteTaker's ability to combine the instructor's own content with any other computer-based material in a single document makes it ideal for materials distribution and exchange.

Beyond this, NoteTaker's entry hyperlink capabilities permit instructors to easily incorporate definitions, elaborations, and cross references in a manner that significantly simplifies the student's use of these aids, whether they are provided in the notebook itself, on a file server, or on the Internet. Increased ease of use is likely to lead to greater utilization, and thus to greater learning.

Finally, NoteTaker's email and context extract "folio" features also facilitate the process of communication between instructors and students by streamlining exchanging parts of notebooks and consolidating them for review by the instructor. Simply dragging all the student submissions over an open notebook will place them all in one place for review as well as creating an archive of all the submitted work.

### **From the student's perspective:**

One of the most important activities in which students engage is note-taking and assembling information. Whether in the lecture hall, the laboratory, the library, or the field, taking notes is often the foundation for keeping track of what's important, making connections between ideas, and planning one's approach to a problem. NoteTaker is an ideal environment for this purpose. Not only is its notebook structure both familiar and well-suited, NoteTaker's categorization, cross referencing and automatic highlighting and indexing features make it easier for student's to harvest the cumulative results of their work across multiple aspects of a particular subject.

In addition, since they inevitably use numerous applications and web sites in their work, students benefit enormously from a simplified way to keep track of many separate but related files. They will find no better application than NoteTaker to plan their work, keep track of research and field data, draft and evolve their ideas, and "put it together under one roof" when it's time to hand in an assignment. Since NoteTaker supports a variety of media, they can author their submissions using diagrams, pictures, tables, animations, and voice annotations in addition to text.

Finally, with the increased use of group projects at all levels of education, tools that facilitate the practical problems of working in groups to create a joint work-product have the potential to both raise the level of the final submission while increasing the student's skill in using technology-based collaborative tools. Managing multiple authors, maintaining version control over many documents, and providing peer feedback are generic problems, and certainly not confined to educational projects. NoteTaker not only provides many tools to assist with these tasks, it provides important experience in using computer-based tools to facilitate the process itself.

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NOTE: NoteTaker™ 2003 for OS X runs on Mac OS X 10.1.5 or greater.

# NoteTaker 2003 (v 1.0) Specifications

## List of Core Application Features

### Content Creation and Editing Tools

- Multi-Level Outline Processor w/Custom Ruler Controls (single entry or multi-line capability)
- Multi-Level Reorganizing Controls (by entry level, outline level, page level and section level)
- Rich Text Editing (font, size, type and color)
- Web Page Viewing (load and view web pages\*)
- Application & Document Linking (link or copy files to notebooks directly from the Finder)
- Format & Custom Appearance Controls
- Drag & Drop Support
- Add and play QuickTime content

### Navigation and View Controls

- Page To Page Animation
- Go To Specific Entry, Page and Section
- Tab Sections
- Page Tabs
- Page Marks
- Entry to Entry Links
- Expand/Collapse Page View
- Focus View
- Display Entry Attributes

### Window, Notebook and Desktop Management

- Tile and Stack Windows
- Full Screen View Mode
- Recent Files Open List
- Preference Setting to Remember Open Notebooks

### User Interface

- Visually rich “spiral notebook with tab sections” user interface
- Windows without Borders option
- Horizontal Tabs and Vertical Tabs Display Option
- Multi-window, multi-notebook environment
- Dock menu with active window listing and Services access
- Custom notebook covers (color graphics & images)

### Presentation Tools

- Slide Show support with interactive setting controls
- Full Screen View mode
- Zoom View controls

### Information Processing and Retrieval

- Active indexing of notebooks
- Pre-defined Index Pages with dynamic content linking
- User-defined Category creation for concept search and retrieval
- Highlight & Summarize for report generation
- User-defined Template creation for structuring information

### Active Voice Memo System

- Built-in voice/sound memo capture system for annotating notebooks

### OS X Integration & Native System Support

- Dynamic Services support
- Clipping Services
- Search Services

### Data Import Support

- vCard import (3.0 standard)
- XML file import
- Internet and Cross-Platform Sharing Support
- Save to Web feature for publishing notebook output while using personal web sharing
- PDF output

### File Management

- Auto-save
- Back-up
- Revert
- Recent
- New From
- Undo/Redo

### Group and Project Sharing Support

- Email notebooks
- Email Page Folio files (or Section Folio files)
- Read-only notebook format
- Drag, drop and assemble new notebooks using multiple Page Folio files

**\* A special note about the rendering and displaying of web pages in NoteTaker:**

Whenever you store or type a URL (web page address) in NoteTaker 2003 (v 1.0) such as [www.aquaminds.com](http://www.aquaminds.com) or [www.apple.com](http://www.apple.com), in most cases, the web page will be accurately rendered and displayed within the entry itself (press the ESC key twice to load a web page entry the first time or use the Refresh Entry command in the View menu to re-load an existing web page entry). Though not intended as a web browser alternative, this dynamic viewing of web page content provides yet another way to organize related information in one place for easier retrieval and reference. But there are technical limitations in the feature itself that mean that some sites and their respective web pages will not always load or render properly within NoteTaker. For example, sites that use Flash animation on web pages will not always render properly or completely. In these cases, mouse click on the URL or web page link from within NoteTaker to open and view it with your system's default browser application. If you do encounter web pages that don't render properly or cause problems within NoteTaker, please let us know about it by visiting our feedback section at [www.aquaminds.com/feedback.jsp](http://www.aquaminds.com/feedback.jsp).

And finally, web pages are not cached and are not stored permanently in this version. If you do need to capture and store web-based information, excerpts and citations at a particular time or moment, then use NoteTaker's Clipping Service (Tools menu). One limitation with using Services is that Microsoft's OS X applications written using Carbon (not the native OS X technology called Cocoa) don't support the Services menu at this time. Nevertheless, we've provided a transparent solution by including a beta release of our Contextual Menu Plugin. The Contextual Menu Plugin enables the use of the control-click (or right-click on 2/3 button mice) to access and enable NoteTaker clipping and search services from within Internet Explorer and certain other Microsoft applications such as Word.