

# WAIS for Macintosh

A Macintosh User Interface for  
Wide Area Information Servers™

User Guide for Release 1.2  
February 1993

## **Preface**

Have you ever been frustrated by a search-and-retrieval system that couldn't seem to understand what you wanted?

Have you ever looked through a dozen retrieved articles to find only one that met your intent?

Have you ever wanted to wave that one good article at the system, and say "Look! This is what I want! Find me more articles like this one!"

Well, now you can do exactly that.

WAIS - Wide Area Information Servers - is an electronic publishing software set which allows you to search for and retrieve multimedia information from databases anywhere in the world. This information can be drawn from data stored on your own desktop, in your organization's mainframe, or in a supercomputer on another continent. WAIS recognizes natural language queries and utilizes relevant feedback for widening and sharpening searches.

This user's guide has been written as a reference handbook for using this point and click interface on a Macintosh®.

**Table of Contents**

Introduction	1
Getting Started	2
Creating a New Question	3
Getting Results	4
Search Strategies - Improving a Search with Relevance Feedback	7
Hints for Improved Searches	10
Following Tangents	10
Chaining Questions	11
Search Strategies - Narrowing Questions with Boolean Operators	12
Using "AND"	12
Using "OR"	12
Using "NOT"	13
Using "ADJ"	13
To Close and/or Save a Question	13
To Save a Question without Closing It	13
To ReOpen a Question	13
A Close Look at WAIS Sources	14
Adding New Sources	16
Removing Sources	17
Review of the Menu Items	17
The File Menu	17
The EDIT menu	18
The QUESTION menu	18
The TEXT menu	19
The SOURCE menu	19
The WINDOWS menu	19

## ***WAIS for Macintosh***

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WAIS Installation 20

MacTCP 21

References 22

## Introduction

Welcome to Wide Area Information Servers!

The goal of the Wide Area Information Servers system is to create an open architecture of information servers and clients by deriving and standardizing a computer-to-computer protocol that will enable users to find and question servers.

WAIS was built around two notions: first, that the user of a search-and-retrieval system should be able to ask questions in his/her language and to provide feedback to assist or re-target the search; and, second, that the best way to search for articles (or any other documents) is to search from a good example, not just from one or two key words.

The model for a WAIS question is:

- Start with a few key words or phrases, and a source to search.
- Examine the headlines and articles that WAIS finds.
- Tell WAIS which articles, or which sections of articles, you find most useful and relevant, then search again using those selections as models.
- Save successful questions for future use.

Asking questions in English language and providing "relevance feedback" to WAIS lets you "zero in" on precisely the information you're looking for. It also lets you widen a search, or change it completely. While you're hunting for information on Subject A, if an interesting article on Subject B turns up, you can select that article as the model for the next search. What's more, you can "branch off" onto a new search without losing track of your original search. In fact, you can continue both searches, and even start others; the range and movement of your searches are determined by you.

Natural language and relevance feedback form the main model

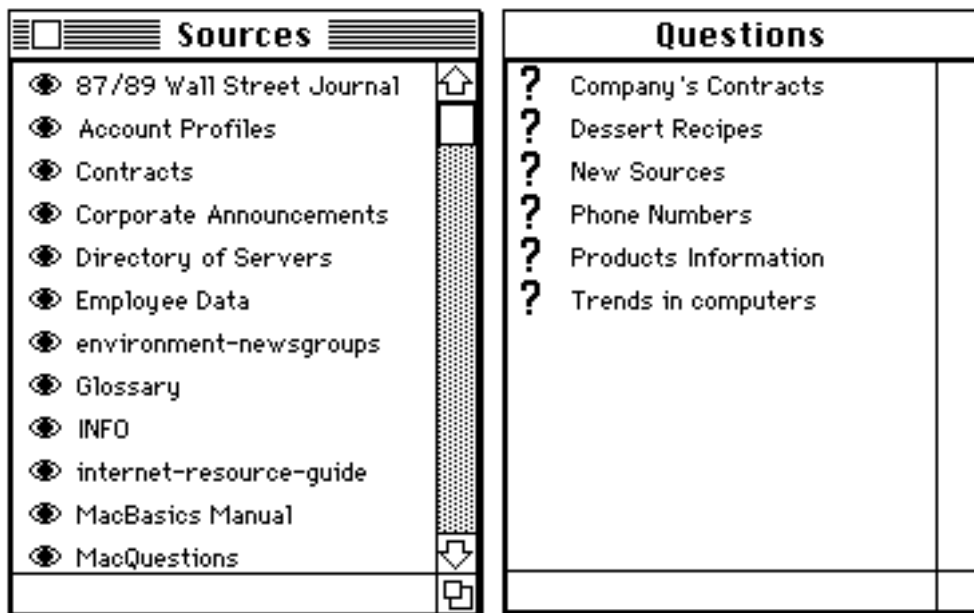
for asking a WAIS question, but you will run into situations in which you need to ask a very specific question. For example, you want to find a particular article about a particular person in a particular newspaper. In these cases, you can use other WAIS searching tools, such as the traditional "Boolean" operations (see "Search Strategies" section). Again, finding the strategy best suited to your needs is up to you. WAIS allows you to use different strategies to look for the information you need.

## Getting Started

Double-click on the WAIS icon:



*The SOURCES and QUESTIONS windows will appear.*



• *List of sources  
downloaded from the  
directory of servers*

• *List of saved  
questions or  
templates that can be  
run in the future,  
either automatically  
or manually.*

Sources are generally available to everyone at a given site or location. If you are installing WAIS for the first time, in the sources window you will only see the "Directory of Servers" source. To proceed from there, see the section "A Close Look at WAIS Sources", and follow the procedure that allows you to acquire a new source.

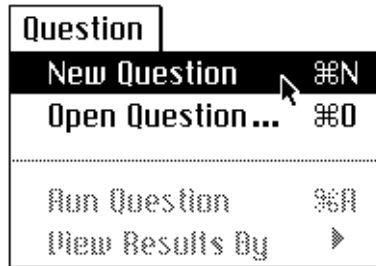
Questions, on the other hand, generally belong to

individuals. If this is the first time you have used WAIS, your QUESTIONS window will probably be empty. When you save a question, its name and icon appear in your QUESTIONS window.



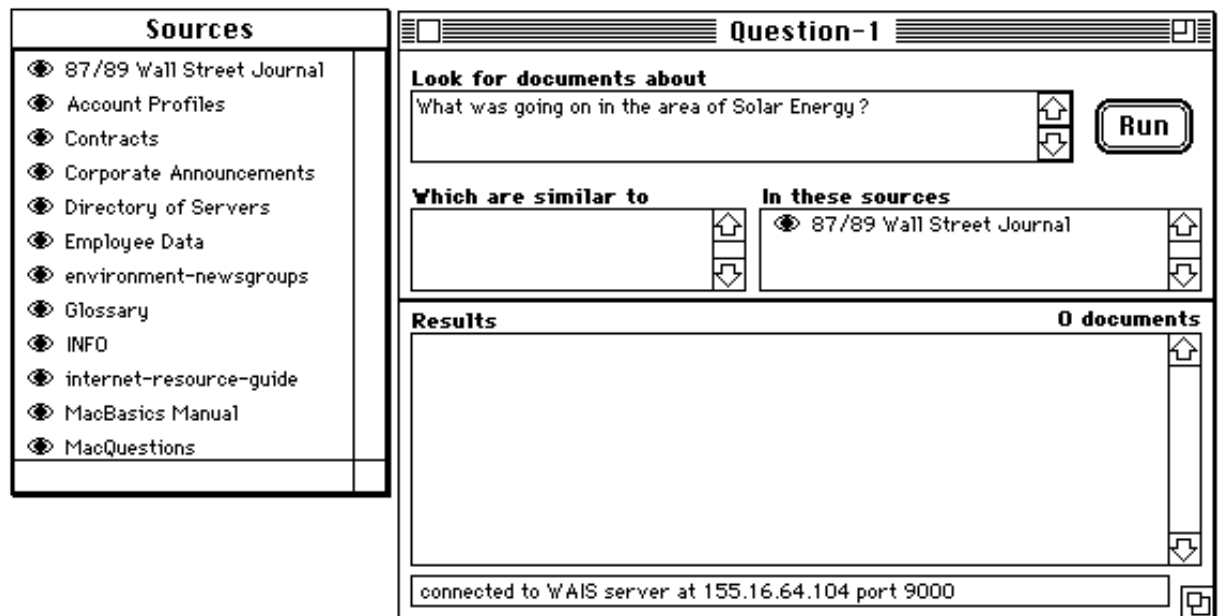
## **Creating a New Question**

1. From the QUESTION menu, select NEW QUESTION.



*A new QUESTION window opens.*

2. Choose a source that you want your Question to search.  
Drag the source from the SOURCES window into the "In these sources" field in the QUESTION window.



*The source name will appear in the "In these sources" field.*

Repeat this for as many sources as you wish.

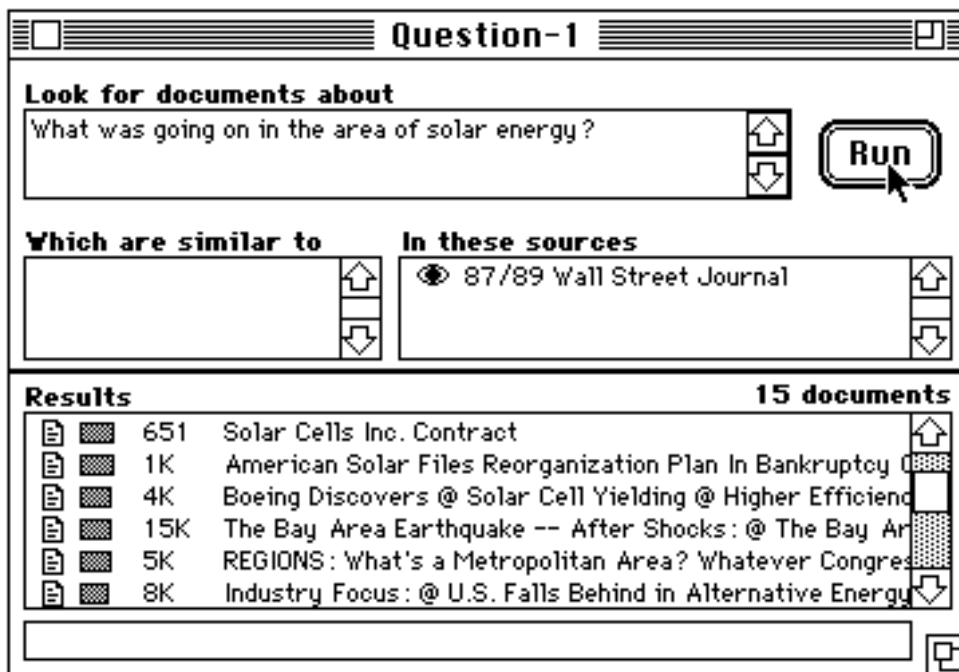
3. Type words or phrases in the "Look for documents about" field, describing the subjects about which you want information. WAIS will search for these words to find useful documents.
4. Click on RUN, to run the question.

## Getting Results

1. Click on RUN (or, hit RETURN).

*The world cursor will turn while WAIS searches for documents that match your request. The "Results" field then displays the titles of the most useful documents found. Documents are ranked, depending on how well they match the question: the best matches are at the top of the list. The horizontal bar tells you how well a document matches your question. The numbers to the right of the bar tell you how big the document is in bytes.*

2. Click on the scroll bar to see more documents.

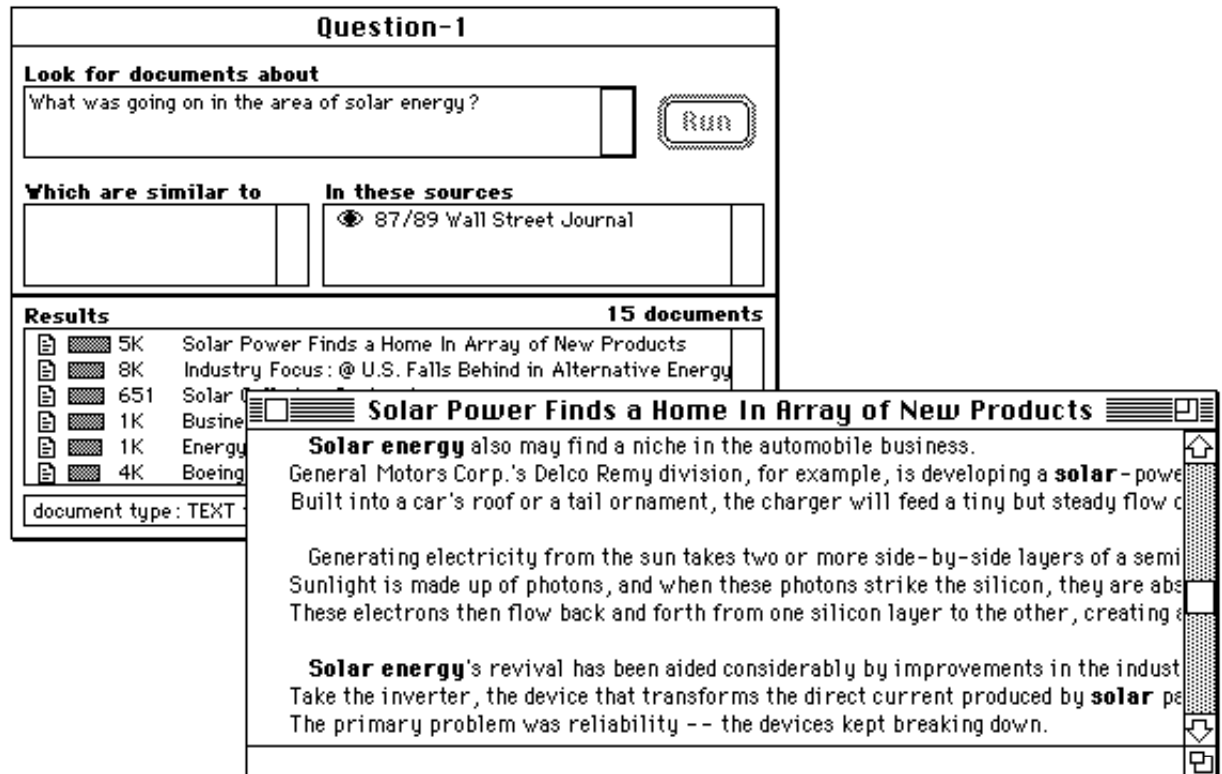


3. To check which type of document has been retrieved, click on the retrieved document title.

In the field at the bottom of the QUESTION window you can read which type of document WAIS has found for you. It can be Text or any electronic format, such as Microsoft Word, picture, or even video.

4. Double-click on any document to display it. Two different things will happen depending on the format of the document WAIS has retrieved.

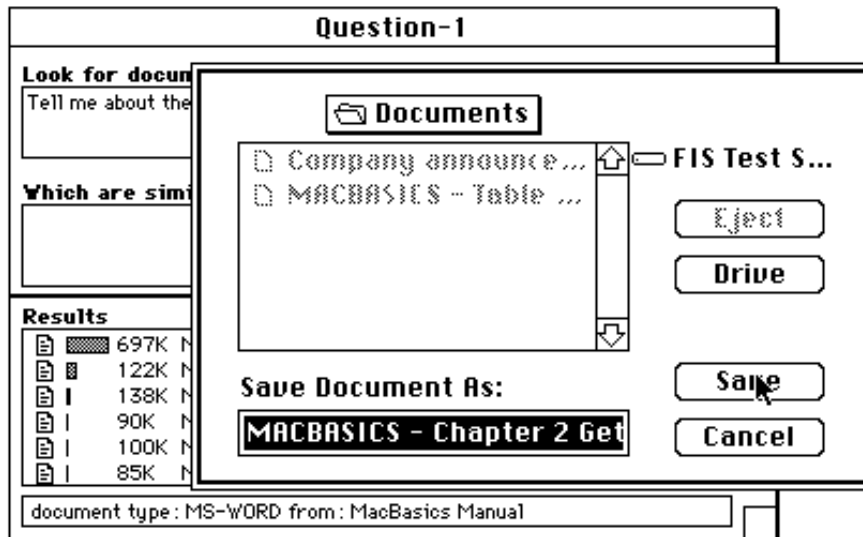
4.1 If the document type is TEXT:



*A new window opens, displaying the document. The important words in the question show up in bold.*

You can display as many of the documents as you like. You can also save and print documents, using commands in the FILE menu. The TEXT menu contains commands that allow you to search for words in the text and control the format of the document.

4.2 If the document type is not TEXT:



*A directory dialog box appears, asking you to save the document you are going to download to your Macintosh.*

You may change the title of the document and the location on your computer. If you do not change the location of the document, WAIS will save it in a folder called "Documents", which is inside your WAIS folder located in your System folder (See chapter: "Installing WAIS" for more details).

Click on the SAVE button.

*WAIS will download the document. If the document is big, a bar from 0 to 100 appears to show you when the downloading process is completed. In the field at the bottom of the QUESTION window, text appears to show you what WAIS is doing.*

To view the document make sure you have the corresponding application (e.g. Microsoft Word, if the document you downloaded is of Microsoft Word type) and return to the desktop or the application to open it.

*Suggestion: if you are planning to use WAIS sources that contain only formatted documents (such as Microsoft Word or pictures) you should keep your Documents folder open all the time so that you can easily reach your documents and open them up.*

5. With these steps, you may have found what you wanted or do not have time to pursue the search. In these cases, you can either discard your question or save it to re-use at a later time.

On the other hand, searching from key words alone may not be sufficient. At this point, you probably want to select some documents (or some sections of some documents) to guide the next step of your search. The next few pages explain how to do this and suggest some possible search strategies.

### **Search Strategies - Improving a Search with Relevance Feedback**

You can use the information from one set of results to modify your original question or to create further questions. Improving your original question often leads to improved results. So, if your first search didn't provide the information you wanted, try one of the following techniques.

1. Probably the best way to improve a question is to drag one or more particularly interesting documents from the Results list into the "Which are similar to" field. This allows WAIS to get a fuller sense of what you want to find, and thus a better chance of retrieving the information you need.

The screenshot shows a window titled "Question-1" with the following sections:

- Look for documents about**: A text field containing "What was going on in the area of solar energy" with up/down arrow buttons and a "Run" button.
- Which are similar to**: A list box containing "Industry Focus: @ U.S. F" with up/down arrow buttons.
- In these sources**: A list box containing "87/89 Wall Street Journal" with up/down arrow buttons.
- Results**: A list of 15 documents. The second document, "Industry Focus: @ U.S. Falls Behind in Alternative Energy @", is highlighted. Other documents include "Solar Power Finds a Home In Array of New Products", "Solar Cells Inc. Contract", "Business Brief -- Applied Solar Energy Corp.: @ Agreement", "Energy Conversion Says Canon Agreed To Acquire 7% Stake", and "Boeing Discovers @ Solar Cell Yielding @ Higher Efficiency".
- document type**: A text field at the bottom showing "TEXT from: 87/89 Wall Street Journal".

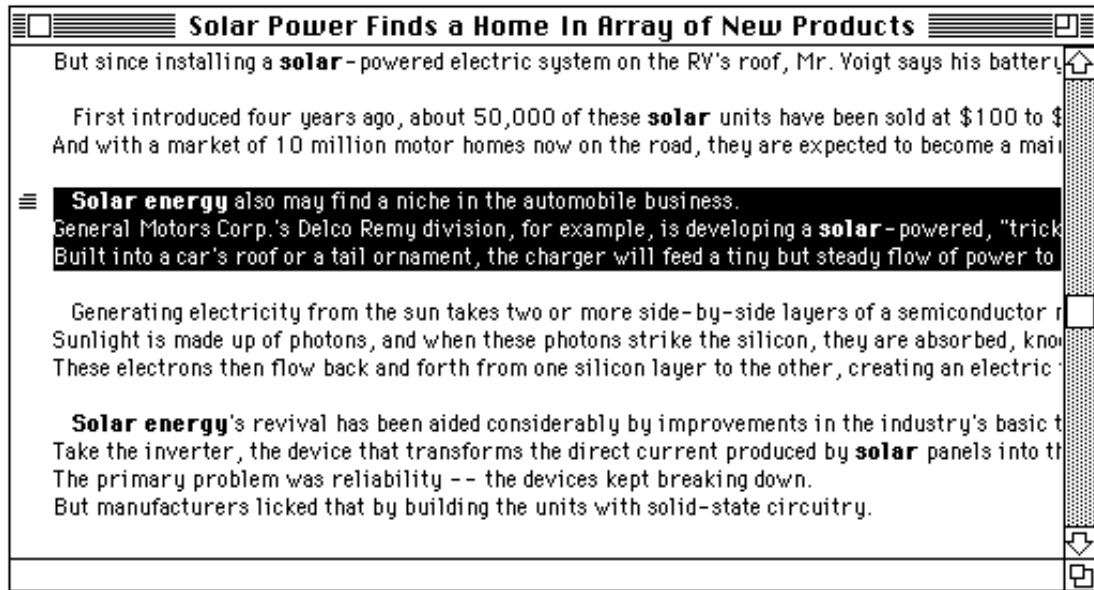
## **WAIS for Macintosh**

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*When you run the question again, the Results list will be updated with the new results, which will include documents similar to the one you selected (if such documents exist in the database).*

2. Alternatively, if one particular section within a document seems more useful than the rest, you can ask WAIS to search for documents that resemble that section. To do that:

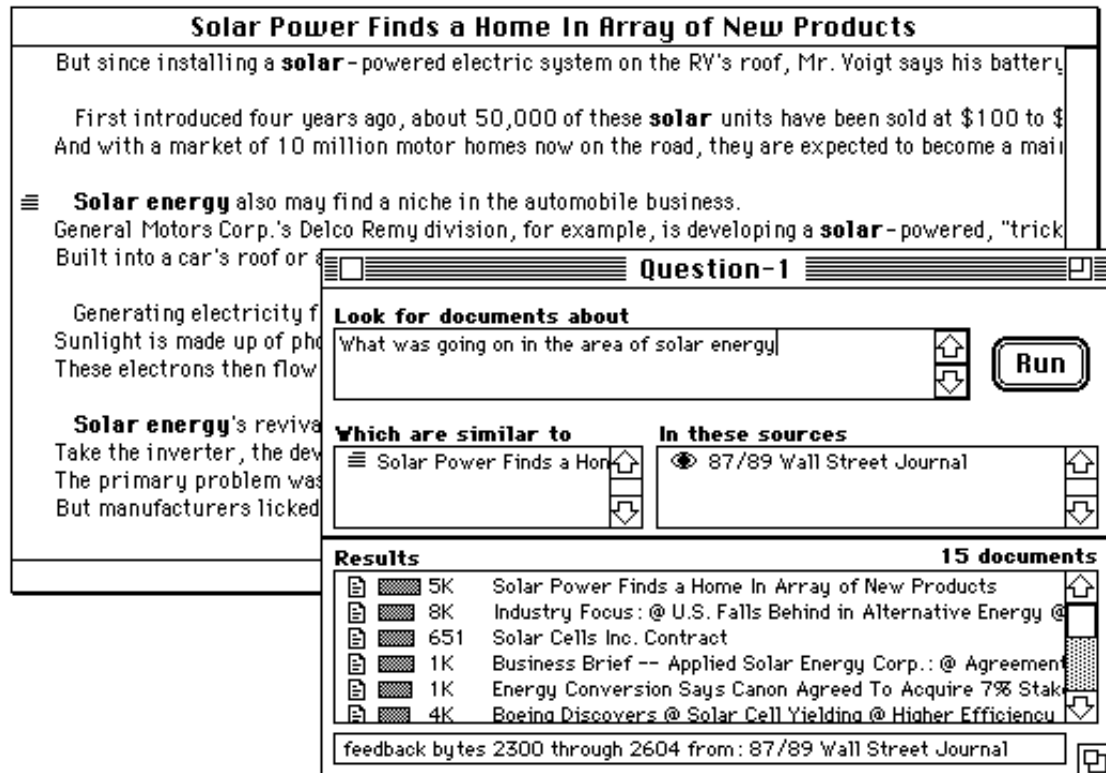
2.1. Drag the cursor over a section of the document to select the text.



*A paragraph icon will appear in the left margin.*



2.2. Drag the paragraph icon into the "Which are similar to" field.



2.3. Run the query again.

*The results will be updated with documents similar to the text you selected.*

## **Hints for Improving Searches**

1. You can add or remove key words. This is often helpful if WAIS didn't interpret your initial words the way you expected it to.

Add key words by typing them in; remove them by backspacing over them, or by selecting them with the mouse and then pressing Delete.

2. You can add or remove sources.

Add sources by dragging them into the "In these sources" field; remove them by dragging them out of the "In these sources" field. You will notice that the sources remain in your SOURCES window, ready to be used again.

3. After modifying your question, click again on RUN.

*A new list of documents will be displayed. (If the new list is identical to the old list, then you may want to try using different key words. Otherwise, chances are that you need to try a different approach, or that the database really doesn't contain any more documents that are relevant to your question.)*

## **Following Tangents**

The techniques listed in the previous sections explained how to improve a search for information on your original topic. Other search strategies involve changing topics, perhaps to follow up some new line of questioning that arose from your original search.

- You can change the topic completely by changing key words.
- You can follow a new line of research, by dragging the relevant result(s) - whole documents or sections - into

the "Which are similar to" field. You may want to change your key words to fit the new topic, as well.

Either of these strategies can be accomplished either by altering your original question, or by creating new questions that preserve the context of the older questions. "Chaining questions" in this manner allows you to follow interesting new directions in a search, without losing any of your old data.

## Chaining Questions

1. While one question window is open, select NEW QUESTION from the QUESTION menu.

*The new Question window will contain the same sources as the existing Question window. You can alter this list of sources, or use it as is.*

2. Drag documents or sections of documents from the existing Results into the "Which are similar to" field in the new Question window, or type key words into the new window, or do both.

**Question-1**

**Look for documents about**

What was going on in the area of solar energy

**Run**

**Which are similar to**

Solar Power Finds a Home

**In these sources**

87/89 Wall Street Journal

**Results** **15 documents**

5K Solar Power Finds a Home In Array of New Products

8K Industry Focus: @ U.S. Falls Behind in Alternative Energy

651 Solar Power Finds a Home In Array of New Products

1K Industry Focus: @ U.S. Falls Behind in Alternative Energy

1K Solar Power Finds a Home In Array of New Products

document type: TEXT

**Question-2**

**Look for documents about**

**Run**

**Which are similar to**

Industry Focus: @ U.S. Falls Behind

**In these sources**

87/89 Wall Street Journal

**Results** **0 documents**

feedback: whole document from: 87/89 Wall Street Journal

3. RUN the new question.

You can continue to chain questions at will. You can save any of these questions at any time.

*NOTE: What you have been using is a search technique called "Natural Language Searching with Relevance Feedback". You write your question in plain*

## **WAIS for Macintosh**

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*English and you get an answer. The server does not "understand" your question, rather it takes the words and phrases in your query and finds documents that have those words and phrases in them. A document gets a higher score if the words are in the headline or if the words occur many times or if the phrases occurs exactly as in the question. Very*

## **WAIS for Macintosh**

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*common words are either ignored or diminished in the scoring. Relevance feedback of a document or a section adds more words to the question. The relevance feedback words are not as important as the original words, but they are used. If a large document is fed back, only the first couple of pages are used.*

## **Search Strategies - Narrowing Questions with Boolean Operators**

There may be cases in which your question is very well defined, and you know the contents of your source. There may also be other cases in which you would want to use the traditional Boolean way of searching for information. In this User Guide we will not attempt to explain all the intricacies of using Boolean logic to search for information. We will instead describe the use of the logical operators AND, OR, and NOT and the ADJACENT operator, to establish logical relationships between the concepts and synonyms in your WAIS questions. These operators can be useful in narrowing down your searches.

### **Using "AND"**

The AND operator is helpful in limiting a search when a particular word is known. For instance, if you are looking for documents about the network capabilities of the Apple Powerbook, then a question like "network capabilities AND Powerbook" might be a good way to start.

The word "AND" (in upper case) is different from "and" in a WAIS question. The word "and" is ignored, while the operator "AND" is recognized and can return very different results.

The AND is a powerful operator since it will require documents to have exactly those words in it.

### **Using "OR"**

The OR operator is often used in conjunction with AND to specify a few different forms of a concept. For instance:

(network OR networks) AND Powerbook

would not lose any documents that talked about "networks" but

did not mention "network" explicitly. This operator is often used to join two different phrases of a Boolean search:

(Novell AND IBM) OR (Appletalk AND Powerbook)

In this case, since the AND operator is evaluated before OR, it could have been written:

Novell AND IBM OR Appletalk AND Powerbook

and it would have returned the same documents.



## ***WAIS for Macintosh***

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The word "OR" (in upper case) is different from "or" in a WAIS question. The word "or" is ignored, while the operator "OR" is recognized and can return very different results.

## **Using "NOT"**

The NOT operator is used to pass over any documents that contain certain words. In a sense, if relevance feedback is like positive reinforcement based on interesting documents, the NOT operator is a negative indication to the server.

Apple computers NOT Powerbook

would not return any documents that contained the word "Powerbook" in it. This operator is very powerful in that it can eliminate too many documents in certain cases. You may want to experiment with it to understand the situations where it is the correct tool to use.

The word "NOT" (in upper case) is different from "not" in a WAIS question. The word "not" is ignored, while the operator "NOT" is recognized and can return very different results.

## **Using "ADJ"**

The adjacent operator "ADJ" is used to ensure that one word is followed by another in the result document. Therefore, "apple ADJ computer" will return documents with exactly "Apple Computer", but not "Apple Computers", and not an article that only contains the words "Apple" and "Computer" separately.

## **To Close and/or Save a Question**

1. Click on the close box in the upper left corner.

If the question has not been saved previously, or if you have made changes to the question, WAIS asks you if you want to save the changes you have made.

2. Click on YES to save the new version of the question.

If the question has been saved before, it will appear in the QUESTIONS window.

3. Click on NO to discard the modifications, or if this is a new question, to discard the entire question.

**To Save a Question without Closing It**

Select SAVE or SAVE AS from the FILE menu.

**To ReOpen a Question**

## ***WAIS for Macintosh***

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Double-click on its icon in the QUESTIONS window (or, open the question from the QUESTION menu.)

## A Close Look at WAIS Sources

When using WAIS you have been dealing with three different types of documents: WAIS questions, documents you retrieve by running a WAIS question and WAIS sources. WAIS sources are identified by the eye icon. To know more about a source, open your "Sources" window.

1. Double-click on a Source icon (or choose OPEN SOURCE from the Source menu).

**old-macbasics**

**Contact** Mac TCP...

**Database** MacBasics Manual

**Updated** continuously

**Costs** (:): Dollars Per Hour

**Description**

This source contains the basics training manual for Macintosh computers, including System 7 updates.

CONTACT the training department if you have any problems about

**Contact** on request

**Not Contacted Yet**

**Budget** (:): Dollars

**Confidence** (:)

**Number of Documents** 15

**Font** Geneva **Size** 10

The Source window for the selected source appears. It is divided in two parts. The top part contains the information about the WAIS source. The bottom part contains features that can be modified to improve your searches.

The Contact field at the top of the window tells you how WAIS contacts the WAIS source. Unless otherwise instructed by the source maintainer or your System Administrator, you will never have to

## ***WAIS for Macintosh***

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change this information.

The Database field contains the name of the WAIS source. It should never be changed or WAIS will not be able to find that source again.

The Updated field tells you how often the source gets updated. The Cost field tells you how much it costs. Both of these features are place holders to indicate the direction of future development. Based on future work, these features may be handled in other ways before they are implemented.

The Description field contains more detailed information about the contents of the WAIS source and who to contact if you have questions or problems with that specific source.

2. You may select the number of document headlines you wish to have displayed with the "Number of Documents" pop-up menu.
3. You can also select the default font and size of the text for documents that are displayed from this source, using the Font and Size pop-up menus.
4. Click on the "Contact" field in the lower half of the window. Choose how often you want your questions to search this source.

*The selected interval will appear in the Contact field, followed by fields that request further information.*

Click on those fields, and enter the information. See your system administrator for additional assistance.

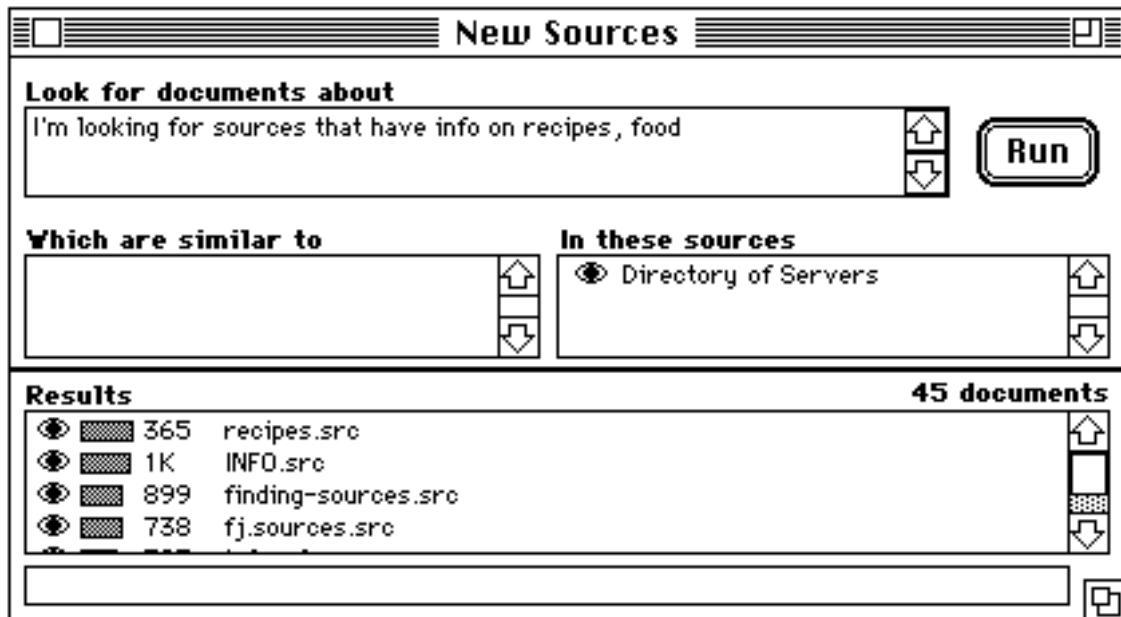
The Budget field allows you to define the maximum budget you want to invest on that source. The Confidence field will allow you to define how much you trust your source. Like the cost field, these are placeholders for future development.

## **Adding New Sources**

Whether you use WAIS on your organization's network or on the Internet, new sources get added continuously to the different Directory of Servers. You may want to add them to your list of Sources.

To discover and save new WAIS sources you have to ask a question to a special source called "Directory of Servers" on the Internet. Or you will have to ask your System Administrator for the name of your organization's Directory of Servers. By convention, many are called INFO.

1. In a question window, drag the WAIS source "Directory of Servers" into the "In these sources" field. Run your question as you would a normal search.



*A list of Sources appears in your Results field.*

2. Click on the Source name, that was retrieved as a result, to find out more about a source.

The Description field contains information on the source and how to contact the Source maintainer.

3. Use SAVE in the file menu to save this source to your Sources



## **WAIS for Macintosh**

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window.

*A dialog box appears asking if you want to save your source. If you save it in the Sources folder inside your WAIS folder, as WAIS asks you to do, the new source will automatically appear in your Sources window.*

## **Removing Sources**

At times your SOURCES window may get too cluttered to find sources quick enough, or some of the sources you have saved may not apply to your current activities or information needs.

1. Drag the Source you no longer want out of the SOURCES window.

WAIS asks you if you want to remove it from your Sources list.

The source is now removed from your SOURCES window. You will have to contact the appropriate Directory of Servers to get it back again.

## **Review of the Menu Items**

This chapter briefly reviews WAIS menu items. It also gives you added information on WAIS features, such as printing or saving a document you have retrieved, and how to open or save WAIS questions and sources.

### **The File Menu**

- **Open Selected** Opens the selected document: this works for the Sources, Questions or Documents in the Results field (or double-click on the corresponding icon).
- **Close** Closes the active window: it can be a Source, Question or Retrieved Document.
- **Save** Saves the active window: it can be a Source, Question or Retrieved Document.
- **Save As** Saves a copy of the active window. You can decide where to locate the new copy by moving through the Directory dialog that appears when

you use this menu item.

- Page Setup Controls the Page Setup for your printer.
- Print Prints the retrieved TEXT document.
- Quit Quits the WAIS application.

## **The EDIT menu**

This is the usual menu for any of your Macintosh applications. The commands work on Questions, Sources and Documents.

The commands in the EDIT menu are:

- Undo
- Cut
- Copy
- Paste
- Clear
- Select All
- Show Clipboard

## **The QUESTION menu**

The commands in the QUESTION menu are:

- New Question    Opens up a new Question window.
- Open Question   Presents a dialog box with which you can point to a saved Question.
- Run Question    (or click the RUN button in your Question window) Runs the WAIS question.
- View Results By   Sorts the results of your question. Three options are available:

- Score    This is the default option that sorts the results of your question depending on how relevant they are to your question.
- Date Sorts results by their date if the date is available in the WAIS

Source.

- Source    Sorts results by the name of the Source. This is useful in a question when you use multiple sources.

### **The TEXT menu**

This menu deals with the TEXT documents retrieved by a WAIS question.

- Find            Use this commands to look for any word in the TEXT document you have retrieved.
- Find Again      Use this command to find the next occurrence of a word.
- Find Keywords   Use this command to find KEYWORDS in the TEXT document you have retrieved.
- Font            Changes the font of the TEXT documents retrieved.
- Size            Changes the font size of the TEXT documents retrieved.
- Keyword Style   Changes the style of the Keywords in the retrieved TEXT document.

Four options are available:

- Plain text
- Bold
- Italics
- Underline

Make sure to turn this feature to Plain text before you print your document if you do not want the Keywords to be printed in bold, italics, or underline.

### **The SOURCE menu**

The commands in the SOURCE menu are:

- New Source If you know the contact information, you can

create a new Source directly from your Macintosh without having to download it from a directory of servers.

- Open Source      Presents a dialog box with which you can point to a saved Source. (or double-click on the Source icon)

### **The WINDOWS menu**

The commands in the WINDOWS menu are:

- Sources      Opens the SOURCES Window.

## ***WAIS for Macintosh***

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- Questions Opens the QUESTIONS Window.



## **WAIS Installation**

To Install the WAIS software on your Macintosh,

1. Make sure you have MacTCP installed and working.

See the following section, or ask your System Administrator about installing it.

2. Copy your WAIS 1.1 application (the document with the WAIS icon) wherever you want to keep it.

*Some users like keeping it on the desktop, others put it in their Applications folder, others create an alias using the System 7 alias feature.*

3. Copy the folder called WAIS to your active System Folder.

The WAIS folder contains three folders: TYPES, SOURCES, DOCUMENTS. The WAIS folder should always be in your System Folder.

*Suggestion: when downloading documents, keep your DOCUMENTS folder open, so that you can easily open the formatted documents you have retrieved. Some users find it very convenient to keep the Documents folder open as a small window right next to the Trash bin.*

4. Start WAIS by double-clicking on the WAIS icon.

## **MacTCP**

If you are planning to install MacTCP yourself, please consult your MacTCP manual or try the following steps:

If you are running under System 6:

- 1.a. Copy • MacTCP control panel document.
  - MacTCP DNR control panel document to your System Folder.

If you are running under System 7, make sure your MacTCP is version 1.0.1 or later then:

- 1.b. Copy • MacTCP control panel document.
  - MacTCP DNR control panel document to the Control Panels folder in your System Folder.
2. Copy the MacTCP application to your hard disk, wherever you usually keep applications.
3. Restart your Macintosh.
4. Go to your control panel and click on the MacTCP icon.
5. Insert your I.P. (Internet Protocol) address.

*Your I.P. address is unique to the computer you are using. Make sure you get the right I.P. number from your Systems Administrator. Setting this incorrectly can lead to very obscure errors.*

6. Test MacTCP to verify that it works by using some standard communications package such as NCSA Telnet. Only after this, proceed to your WAIS 1.1 installation.

*NOTE: Users should be aware that while WAIS 1.1 can access and retrieve information from all Internet WAIS servers, the servers may not perform in the same way as the*

## **WAIS for Macintosh**

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*commercial WAIS server. Boolean is not always available for the freeware WAIS servers on the Internet, nor is enhanced relevance feedback.*

*The freeware WAISStation should not be used to retrieve information from the commercial server. It will not be capable of retrieving documents.*

## References

### WAIS Documents:

"An Executive Information System for Unstructured Files: Wide Area Information Servers," Brewster Kahle, Harry Morris, Franklin Davis, Kevin Tiene, Clare Hart, Robin Palmer. November, 1991. Description of the corporate system installed at Peat Marwick, Electronic Networking, a Meckler publication, Spring 1992, pp. 59-68.

"Interfaces for Distributed Systems of Information Servers," Brewster Kahle, Harry Morris, Jonathan Goldman (Thinking Machines Corporation), Thomas Erickson (Apple Computer), John Curran (NSF Network Service Center), March, 1992. (formally named "Interfaces for Wide Area Information Servers"). Available via anonymous FTP: /pub/wais/wais-discussion/Interfaces.txt @quake.think.com or WAIS server wais-discussion-archives.src

"WAIS Bibliography," Barbara Lincoln, Thinking Machines, July, 1992. Available via anonymous FTP: /pub/wais/wais-discussion/bibliography.txt @quake.think.com or WAIS server wais-discussion-archive.src

### WAIS-related articles/publications:

"The Promise of the WAIS Protocol," UNIX Today!, Jason Levitt, December 9, 1991, pp. 44, 47-48. Article describing the freeware release.

"For the PC User, Vast Libraries," New York Times, John Markoff, July 3, 1991, pg. C1. Overview of WAIS Internet experiment.

"Personal Computing: Collective Dynabases," Communications of the ACM, Larry Press, June 1992, pp. 26-32. Overview of WAIS and commercial projects.

"Where There's a Will, There's a WAIS," Digital Media - A Seybold Report, Denise Caruso, February 17, 1992, pp. 5-6. Article touching on several issues of WAIS, such as protocol, client/server relationship, "for pay" servers, and legal issues.

"Browsing Through Terabytes," Byte Magazine, Richard Stein, May 1991, pp. 157-164. Readable article on what a large WAIS system looks like.

"Release 1.0," Esther Dyson, April 1991, entire issue. In-depth article on commercial systems and protocols, featuring WAIS. (Hardcopy copies available from: EDventure Holdings, 375 Park Ave., New York, NY 10152; (212) 758-3434) anonymous FTP: /pub/wais/wais-discussion/issue-8.text@quake.think.com WAIS server: wais-discussion-archives.src

### Electronic Services:

wais-discussion@think.com: Weekly digest of mail from users and developers on Electronic Publishing (includes all wais-interest postings). Requests to wais-discussion-request@think.com. anonymous FTP access to archives: /pub/wais/wais-discussion/issue-\*@quake.think.com

wais-talk@think.com: interactive list of developers. A couple notes a day. Requests to wais-talk-request@think.com. Archives are available on WAIS server wais-talk-archives.src

## ***WAIS for Macintosh***

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comp.infosystems.wais: a netnews discussion group on WAIS issues. All postings to wais-discussion@Think.com go to that group as well.

For more information on WAIS™ see the references section at the end of this document.

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