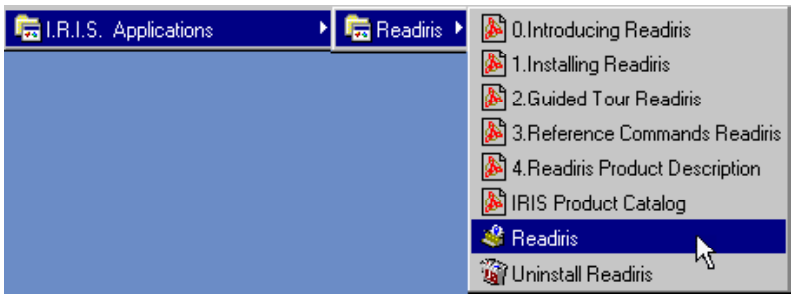
Chapter 2
GUIDED TOUR

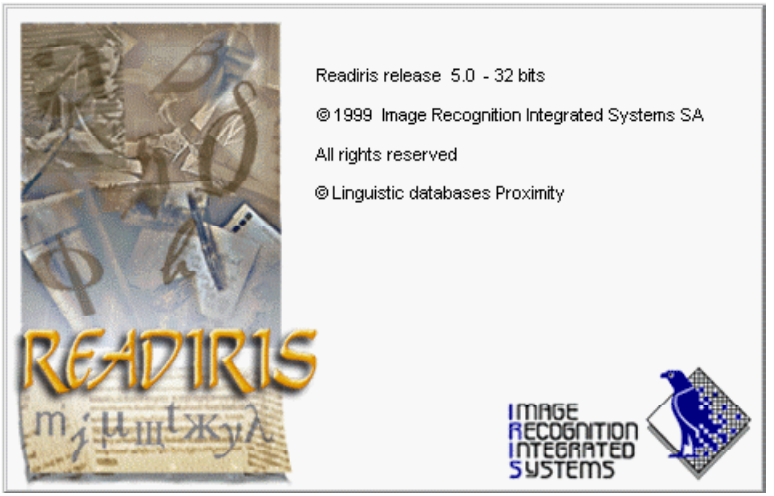
Readiris is a state-of-the-art OCR package equipped with numerous advanced features. We will discuss all major features in this chapter and add many tips and hints concerning the use of Readiris.

STARTING THE SOFTWARE UP

Click on the Readiris application in the submenu "I.R.I.S. Applications - Readiris", or click on the shortcut to the Readiris application on your desktop.



The Readiris startup screen and application window are displayed. The startup screen displays the version and copyrights of the Readiris software. Clicking the mouse anywhere makes this screen disappear.



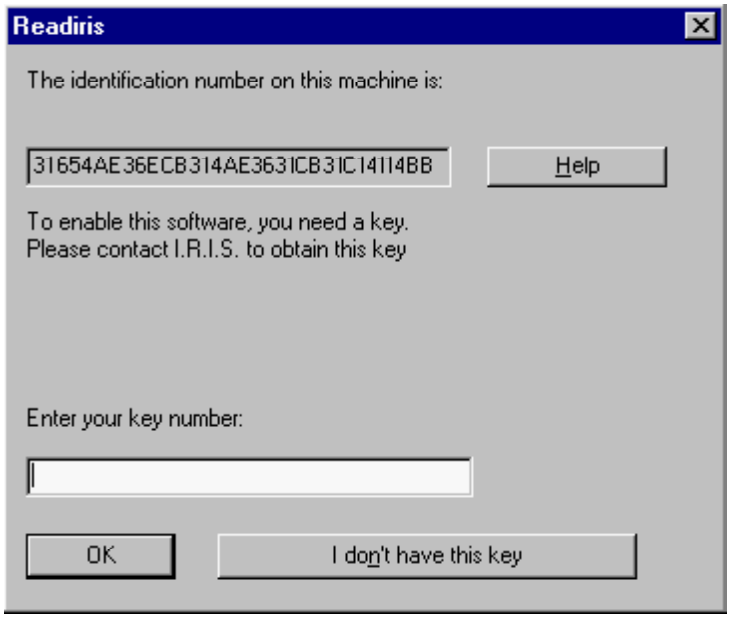
The next window concerns the OCR wizard; click Cancel for the time being.

THE FIRST-TIME STARTUP

Depending on the software bundle you acquired, the first startup may be special: you may be prompted to register your licence.

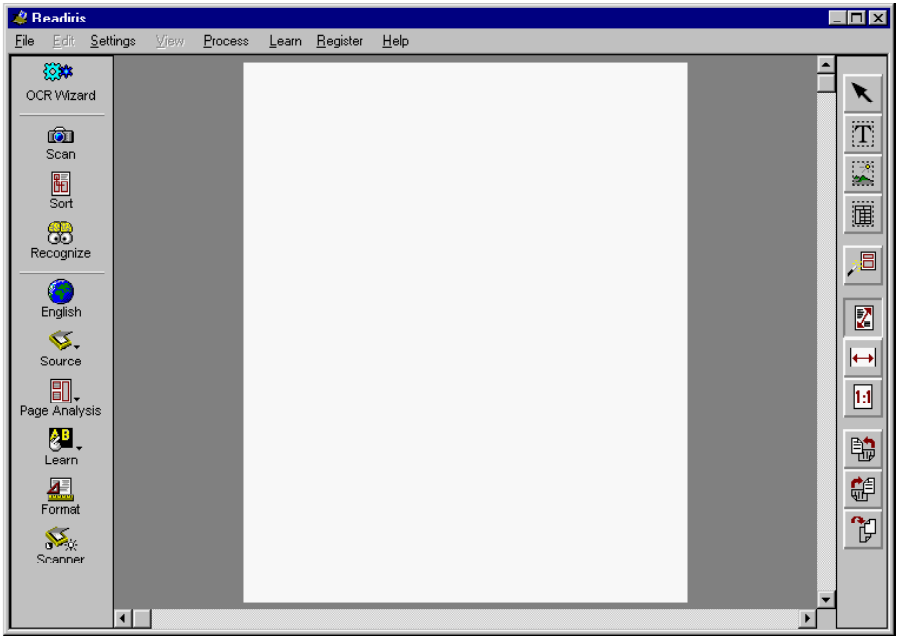
If this is the case, the use of Readiris is limited to 30 days, and by registering, you receive a free **softkey** from I.R.I.S. to continue using the software after the first month.

It takes your **identification number** to generate the softkey; be sure that this number is available or mentioned when you register your licence.



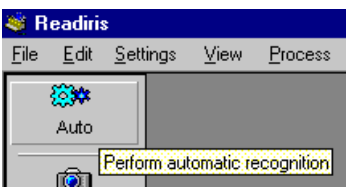
DISCOVERING THE READIRIS INTERFACE

The Readiris application window not only contains **command menus** but also two button bars that give quick access to all frequent commands. Initially, some command menus are dimmed: they concern the preview. As long as no image is opened, they are unavailable.



The same goes for the **image toolbar** on the right side of the application window: it contains all commands you need during the image preview. The **main toolbar** on the left gives quick access to all frequent general commands.

To learn which command corresponds to a certain button, hold your mouse pointer over it for a while: a **tooltip** will tell what the button does.



Finally, the window pane or **image zone** is where the scanned images are displayed. You can drop image files onto the image zone to recognize them.

GETTING STARTED WITH A FIRST TUTORIAL

The best way to become familiar with the operation of Readiris is undoubtedly by using it. A number of **prescanned images** is provided with the software; they allow you to get started even when there is no scanner connected to your computer. Let's turn to these now.

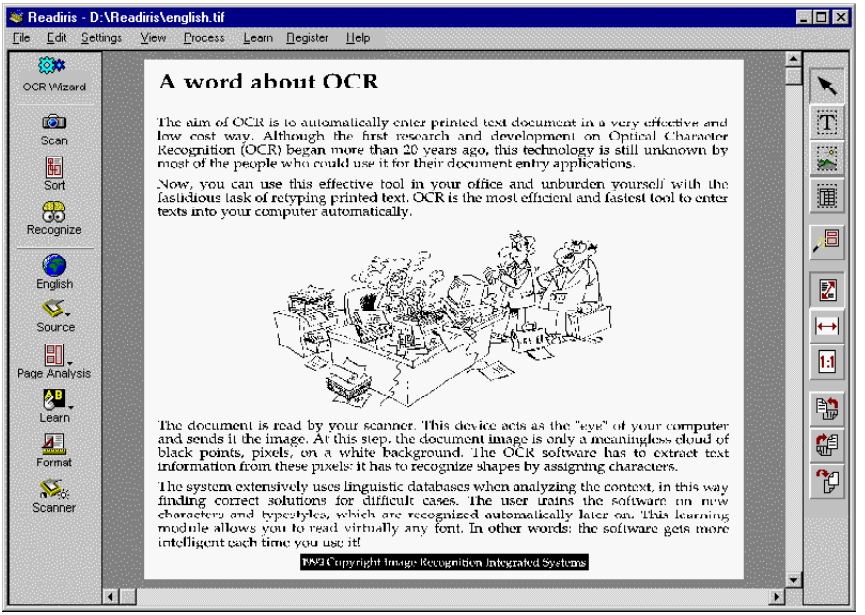
The "Source" button on the main toolbar determines whether you are going to use a scanner or a prescanned image as image source. Readiris allows you to open TIFF images (uncompressed, packbits, Group 3 and Group 4 compressed), Paintbrush (PCX) images and Windows bitmaps (BMP). Only black-and-white images are supported. This capability is particularly useful to convert your **faxes** into editable text files.

As you are going to open a prescanned image, you should select the disk, and not the scanner, as image source with the "Source" button.

Next, click the "Open" button. (When you select the disk as image source, the "Scan" button is replaced by the "Open" button and the corresponding "Scan" command under the "Process" menu is replaced by the "Open" command.)

You could also select the command "Open" from the "File" menu and open a prescanned image directly - this works even if your scanner operates as current image source.

You are invited to select an image file. Select the file ENGLISH.TIF in the Readiris folder. The image is read from disk and displayed in the image zone progressively.



A third way of opening prescanned images is the use of **“drag and drop”**: drag an image from the Windows Explorer onto the Readiris image zone and it is opened promptly.

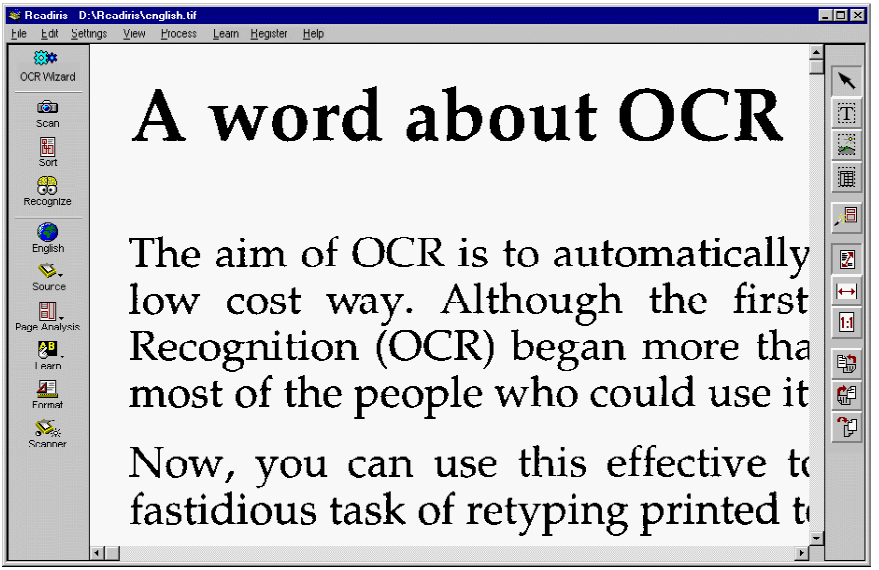
The image toolbar on the right side of the Readiris application window contains all commands you need during the image preview: tools to indicate the zones of interest, to rotate the image, zoom in and out etc.

ZOOMING IN ON IMAGES

Readiris has several commands that allow you to **zoom** in on the scanned image, for instance to verify the scanning quality.

The image toolbar contains buttons that allow you to zoom in at real size, to fit the image to the page width and to fit the entire image in the preview window. The "View" menu contains the same commands and adds two extra zoom levels: you can display the image at 50% and 200% of its actual size. At actual size, a screen pixel corresponds to an image pixel. (Shortcuts are available for all zoom levels!)

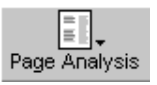
Finally, you can *right*-click the mouse button over a region of the scanned image to zoom in at real size immediately. Right-click a second time to zoom out again.



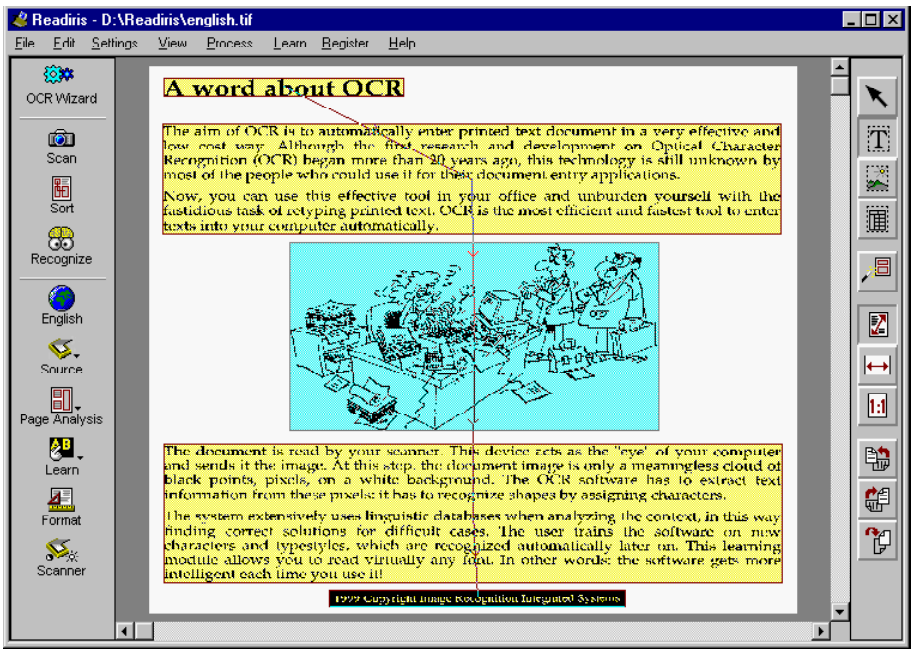
ONE, DECOMPOSING A SCANNED IMAGE

Now that the image is scanned, you have to indicate which parts you want to convert into editable text by drawing frames, so-called “windows”, around the zones of interest.

Actually, Readiris will do this for you automatically when the option "Page Analysis" is enabled on the main toolbar.



Automatic page decomposition is particularly useful when **columnized texts** and documents with a complex page layout, possibly including graphics and tables, are recognized.

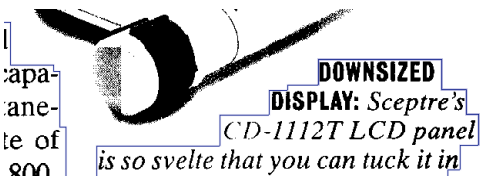


Page decomposition uses three **window types**: text, graphic and table windows. Readiris discriminates text blocks, tables and graphic zones containing photos, illustrations etc. on the page. (Saving graphics and recognizing tables will be discussed at great length below.)

A **color code** indicates the window type: text zones are yellow, graphics are blue and tables are purple.

The number of windows is indicated at all times in the tooltips of the "Text Window", "Graphic Window" and "Table Window" tools.

Page analyisis is fast, skew-tolerant and highly accurate: it traces complex, “irregular” shapes.



The page analysis will even detect zones where you get **white text on a black background**. Recognizing such inserts is no problem: while the preview displays the scanned document correctly on-screen, Readiris “inverts” the image when the need arises to recognize such text blocks! (You can have your scanner generate fully inverted images to process pages with white text on a black background. See below.)

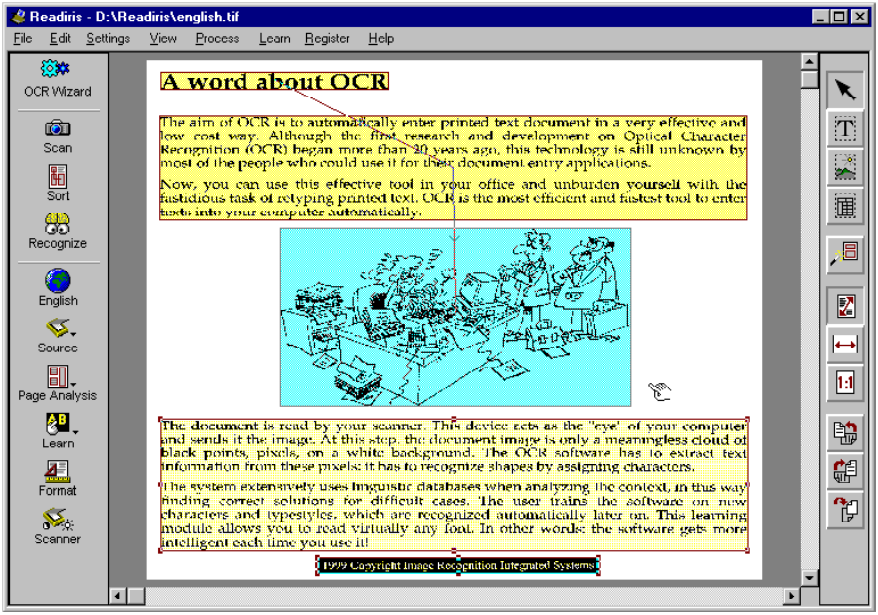
One and a Half, Sorting Windows

Readiris not only detects the various blocks, but also *sorts* them: the zones are sorted top-down, left to right by default to cope with columnized documents.

Evidently, you can modify the **sort order**. To do so, click the "Sort" button on the main toolbar. The mouse cursor becomes a pointing hand as soon as the “sort mode” is enabled.

Click on the windows you want to include. Windows you do *not* click on are simply ignored, excluded from recognition. It's easy to see which windows are

selected and which aren't: the selected windows have their full color, non-selected windows have a lighter color tone.



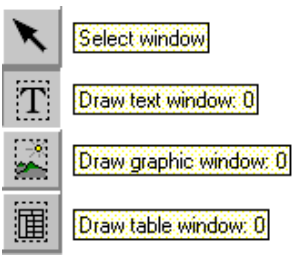
Page analysis is enabled by default. To force Readiris to decompose the current page - because you disabled page analysis by accident, because you erased some windows erroneously and want to redo the page analysis etc. -, you can simply click the button "Analyze Page" in the image toolbar.

(Select the document language *before* executing the page analysis when you are dealing with Asian documents. Specific routines are used for these languages: the interline spacing of Asian documents is in most cases bigger than in Western

documents, the text is made up of small icons (“ideograms”) that could easily be seen as graphic zones in Western documents and the text may run from top to bottom, from right to left.)

TWO, WINDOWING A SCANNED IMAGE MANUALLY

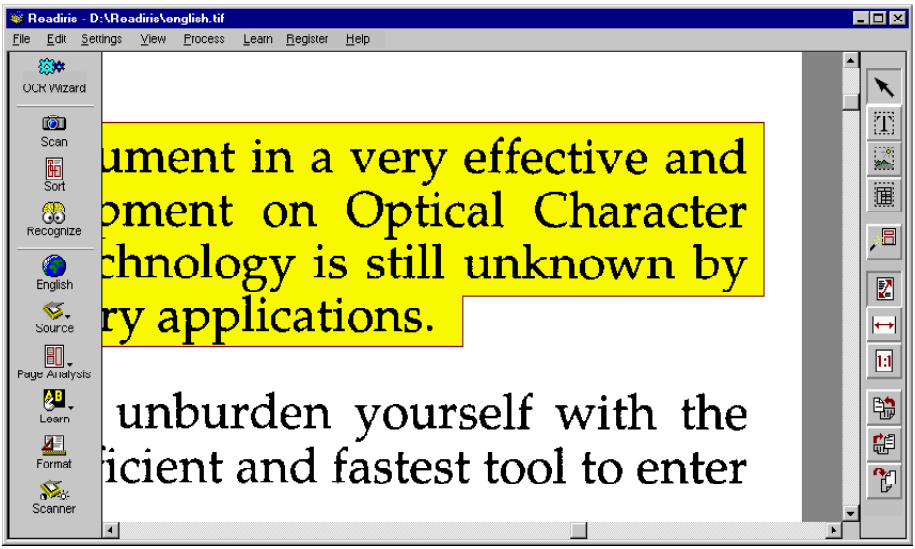
Page analysis is the automatic way of windowing a scanned page. Alternatively, you can zone an image manually with the **windowing tools** of Readiris.



To **create** a rectangle around a zone of interest, select the corresponding tool in the image toolbar, click the cursor in the upper left corner of the window, stretch the window by moving the mouse to the lower right corner and click again. (Sides smaller than 1 mm are not allowed, they wouldn't even contain a single character anyway.)

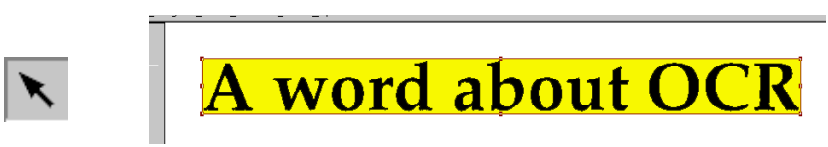
The windows are automatically sorted in the order of creation: arrows indicate the sort order.

You can also frame “irregular” text blocks by drawing **polygonal windows** around them. Non-rectangular windows are created by merging rectangular zones: as soon as two rectangles (of the same type) intersect, they become a single window automatically! In a way, you're building a house by adding one room after the other... (Creating polygonal table windows doesn't make any sense.)



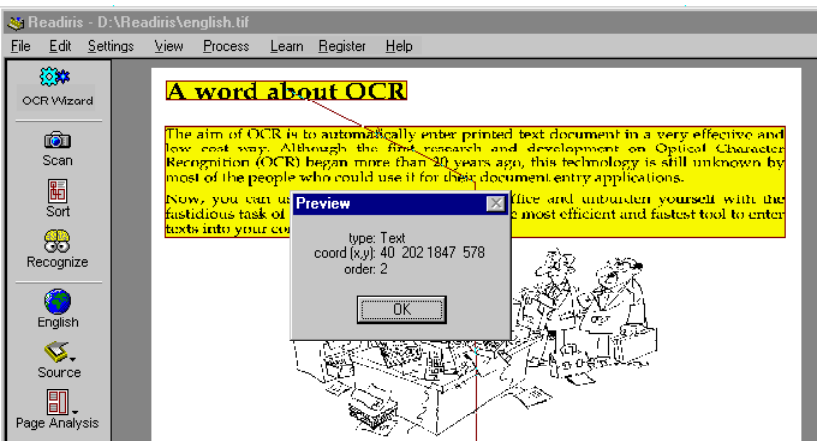
Furthermore, manual windowing can be combined with window sorting: you can draw new windows even when the “sort mode” is enabled. You then use sorting to include a number of detected windows and manually create some other windows where the page analysis didn't yield the appropriate results. As soon as you start creating windows in the “sort mode”, all windows you didn't select are promptly erased!

To modify, move and delete windows, you need to **select** them first. To do so, select the "Window Selection" or “arrow” tool in the image toolbar and click inside a window. Rectangular markers now appear at each corner and in the middle of the window sides.



To **unselect** windows, click the mouse button elsewhere. To select **additional windows**, hold down the Shift key while clicking on these extra windows. To select a window and the **included windows** (of another type), hold down the Ctrl key while clicking on the main window.

You can display the type, pixel coordinates and sort order of a window by pressing the Alt key while you select it!



So much for selecting windows. To **modify** a window, select it, put your mouse cursor over a marker and drag the side to change the window size.

To **move** a window, simply select it and drag it to another location.

To **delete** windows, select the window(s) and choose the "Cut" or "Clear" command from the "Edit" menu. The "Cut" command cuts the window(s) to an internal buffer, "Clear" erases the window(s) irretrievably. When you paste windows, they are inserted in their original position, and you have to drag them to their new location.

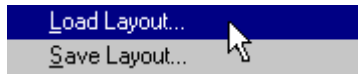
In fact, *all* familiar commands from the "Edit" menu apply to the windows: you can delete, cut, copy and paste them! The "Undo" command also applies: if

you have unfortunately deleted, moved, resized etc. some windows, "Undo" will cancel the last operation.

Also note that shortcuts are available for all commands! Let's give an example: to erase all existing windows, you can choose the command "Select All" or its shortcut Ctrl+A and click the command "Clear" or its shortcut Delete. You are now ready to recreate the necessary layout. To restore the previous layout, you can choose "Undo" or the shortcut Alt+Backspace.

THREE, SAVING WINDOWING TEMPLATES

The resulting windowing layouts can be saved as **zoning templates** for future use with the command "Save Layout" under the "File" menu and loaded into memory with the command "Load Layout".



If you have to recognize documents with a similar layout, for instance a 50 page report where the header and footer should be excluded for obvious reasons, a single template can be applied to zone all 50 pages.

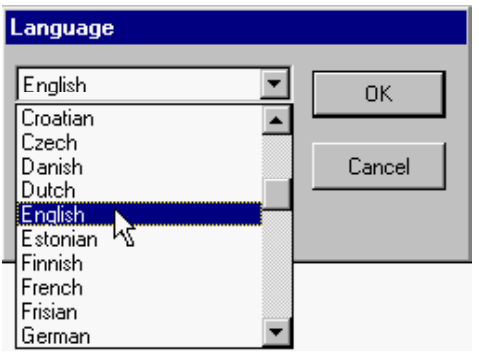
When you load a template into memory, page analysis is disabled automatically. The zoning template remains active until you re-enable page analysis on the main toolbar.

READIRIS TAKES YOU AROUND THE WORLD

Assuming that the windows are correctly defined, you are now almost ready to execute the character recognition. We say “almost”, because we haven’t verified the language and document settings yet.

The language setting can be found on the main toolbar.

Click the "Language" button to modify the document language.



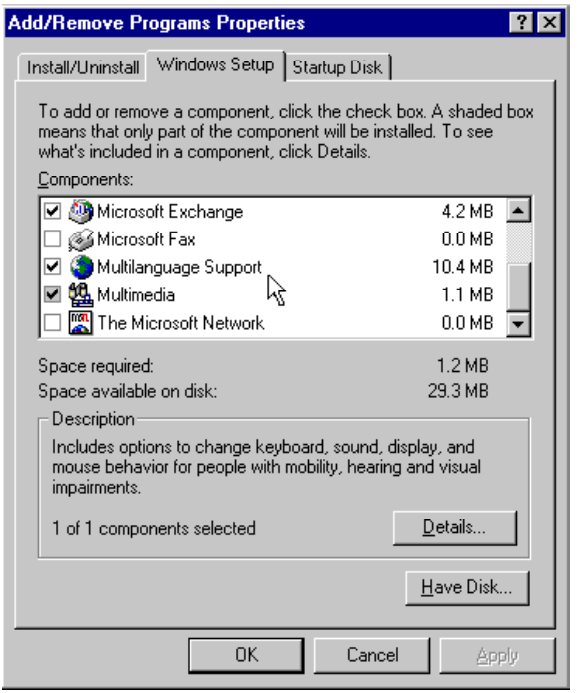
You can press a letter key to move to it directly: if English is currently selected, and you want to select Hungarian, you can click the "H" key on your keyboard to go directly to the Hungarian language. When several languages have the same initial, press the letter several times to go through the options. Let's give an example: Readiris reads Polish and Portuguese. By pressing "P" once, you select Polish, by pressing "P" a second time, you select Portuguese, and by pressing "P" a third time, you're back on Polish. (To go to *another* letter, say T, press BackSpace before you enter the "T" character.)

Readiris is far from limited to English: up to 55 **languages** are supported! All American and European languages are supported, including the Central-European languages, Greek, Turkish, the Cyrillic (“Russian”) and the Baltic languages.

Optionally, you can read **Asian documents**: the extra module “Asian OCR add-on” offers recognition of Japanese and Simplified Chinese. Traditional Chinese is not supported. (Simplified Chinese is used on China’s mainland, where Traditional Chinese is used by the “Big 5” communities - Hong Kong, Taiwan, Singapore etc.)

Also note that the British and American - or should we say “international”? - variants of the English language are distinguished.

It takes the appropriate Windows configuration to display Central-European, Greek, Turkish, Cyrillic and Baltic characters. You may have to install the Windows “service pack” "Multilanguage Support" before your Windows system is able to cope with these languages. Select the icon "Add/Remove Programs" under the "Control Panel" to find out if this Windows module is installed on your PC. Depending on the software bundle you acquired, the Readiris CD-ROM may contain detailled information on how to install this Windows module.



To view and edit Asian documents, you can install an Asian, Japanese or Chinese version of the Windows operating system or run specialized “emulating” software (such as UnionWay AsianSuite or TwinBridge AsianBridge) on a Western version of Windows to correctly represent the ideograms of these Asian languages.

Selecting the proper document language is imperative. Based on the selection of a language, the software knows which **symbol set** to recognize. Multi-linguistic support ensures that “exotic” characters such as ç, ß, ñ, γ and ø are recognized correctly.

Secondly, the software extensively uses **linguistic databases** to validate its results. Suppose that you have to read the word "president" where an ink stain makes the "r" look like an "f". Looking things up in the English lexicon, Readiris will detect autonomously that the word "president" is being read and that it doesn't make any sense to recognize the symbol "f". This **“self-learning” technique** is of course highly dependant on the linguistic context.

Linguistics offer useful help to solve **ambiguous cases** such as an "O" which might be mistaken for a '0'. Another typical example is the letter "l" and number '1' which have an identical form in many fonts - think of texts produced on old typewriters! The linguistic context helps to determine whether you are dealing with "l" or '1'.

The illustration below shows various shapes of '1' and "l". The shapes on the first line are unambiguous, the shapes on the second line are ambiguous, but linguistics can solve them. When the context does not suffice, the user intervenes.

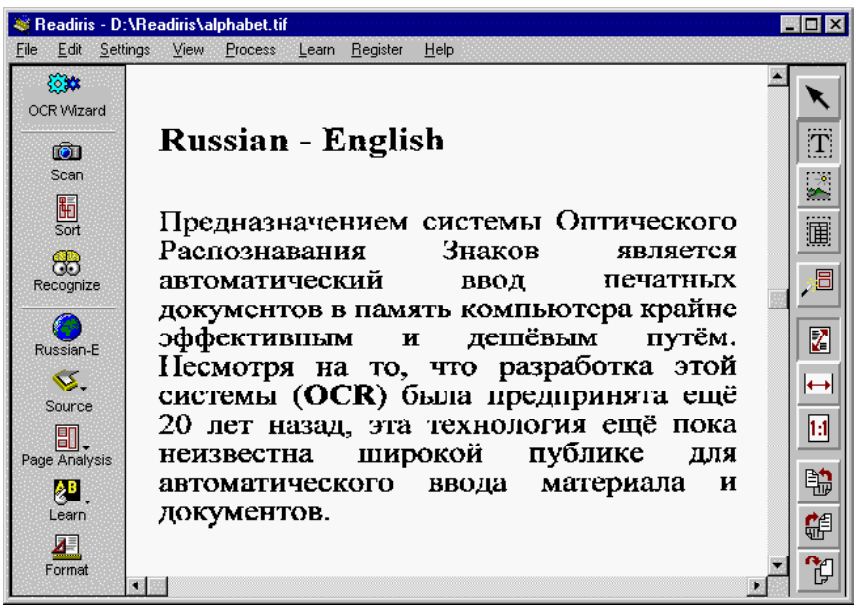
READIRIS CHANGES LANGUAGES AS NEEDED

But the buck doesn't stop here: Readiris can switch languages in the middle of a sentence without any help from the user! When Western words pop up in Greek, Cyrillic or Asian documents - many untranscrible proper names, brand names etc. are written using the familiar Western symbols -, Readiris can switch to the correct alphabet automatically. In other words, you can activate a **mixed alphabet** of Greek, Cyrillic or Asian and Western characters.

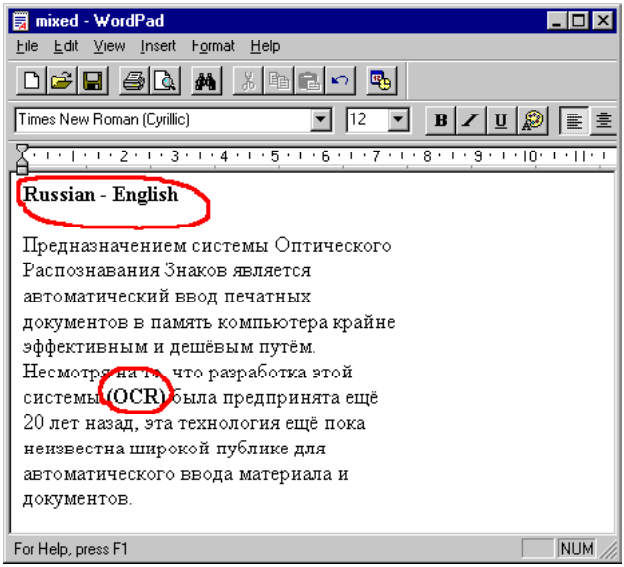
Be sure to select "Greek-English" or the appropriate Cyrillic language setting - for instance "Byelorussian-English". In other words: don’t try to just select

"Greek" or "Byelorussian" as document language and hope that the Western symbols will come out fine!

Here's an example where a Russian text contains some English words - open the image file ALPHABET.TIF if you want to try it for yourself!



The end result looks like this when opened with the wordprocessor - you may have to select a Cyrillic **font** to display the Russian text correctly.



To **mix other languages**, simply select the language with the most extended character set. If you have a document where the, say, French translation is placed alongside an English text, you have to select French as language to ensure that the accentuated characters such as ç, é and ù get recognized correctly.

DEFINING THE DOCUMENT CHARACTERISTICS

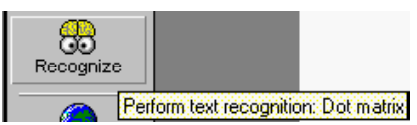
Now that the language is set, we'll turn to the other document characteristics. You can fine-tune the recognition by specifying some document features: the font type and character pitch. (These commands do not apply to Asian documents.) Let's clarify what this means.

First of all, indicate whether you are recognizing "normal" or **dot matrix** printed documents with the command "Font Type" under the "Settings" menu.

Setting this parameter correctly is mandatory: “draft” or “9 pin” dot matrix symbols are made up of isolated, separate dots, and highly specialized recognition routines are required to recognize them.

“Letter quality” dot matrix printing, also called “25 pin” or “NLQ” dot matrix, requires the normal setting, as do the **printing qualities** typeset, typewritten, laser printed and inkjet printed. Obviously, "Normal" is the default value.

The font type is indicated in the tooltip of the "Recognize" button: when no message is added to the tooltip, the “normal” printing quality applies, when the message "Dot Matrix" shows up in the tooltip, the dot matrix reading mode is enabled.



The **character pitch** can be set with the command "Character Pitch" under the "Settings" menu.

With *fixed* or “monospaced” fonts, all symbols of the font have the same width. `An "i" takes up as much horizontal space on a line as a "w", as is the case in this sentence.` Think of documents produced using a typewriter, where the carriage moves a fixed distance for each typed symbol.

A *proportional* pitch means that the width of a character depends on its shape. Symbols like m and w are wider, take more horizontal space on a line than the

thin characters l or j . Virtually all books, magazines and newspapers are printed in proportional pitch.

Courier, a fixed or "monospaced" font
Letter Gothic, a fixed or "monospaced" font

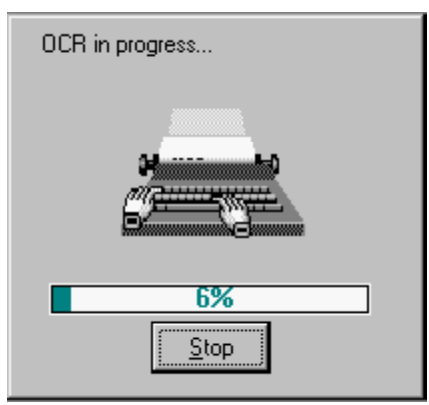
Century Schoolbook, a proportional font
Arial, a proportional font

The simplest solution is to leave this option at all times on the default value "Auto", which means that Readiris will detect the character pitch automatically.

READIRIS GETS MORE INTELLIGENT EACH TIME!

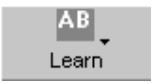
When the document language is selected and document characteristics are set, you can click the "Recognize" button.

The OCR progress is indicated on-screen. You can click the "Stop" button to abort the text recognition.



At the end of the recognition, Readiris enters the interactive learning phase when the learning is enabled with the "Learn" button on the main toolbar. Interactive learning is enabled by default.

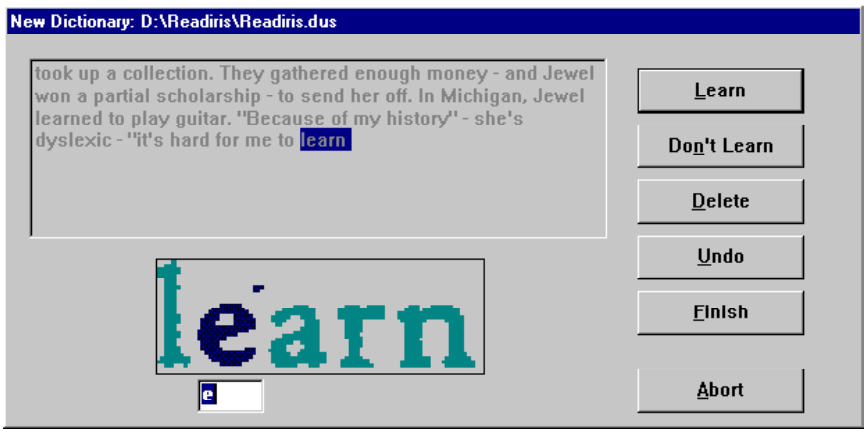
(Interactive learning does not apply to Asian documents: learning does not make sense for these languages which use thousands of different symbols - and you'd have to be able to enter the ideograms, not an easy task when using a Western keyboard!)



Font training can substantially enhance the accuracy of the recognition system. When the user tries to read distorted, defaced forms as are found in real documents or stylized font shapes which Readiris does not recognize optimally, training can overcome this temporary "failure".

User learning is also used to train the system on **special symbols** which Readiris is unable to recognize, such as mathematical and scientific symbols and dingbats. Some examples: Readiris can be trained to recognize the "π" symbol as "pi" or the dingbat "☎" as "Tel". (However, the list of recognized symbols cannot be extended with the symbols "π"and "☎"!)

The recognized text is displayed progressively and the system stops on doubtful characters, or - if you are dealing with touching characters ("ligatures") - on doubtful character strings. They are always presented in their context, the doubtful characters are highlighted. Unrecognized characters are represented by a tilde (the "~" symbol).



First thing you should do is verify if you activated the correct font dictionary and dictionary mode - these are always indicated in the title of the learning window. If that is not the case, click the "Abort" button - the document image is redisplayed with the zoning as was created - enable the right font dictionary or dictionary mode and run the OCR again. (The operation of font dictionaries will be discussed shortly.)

If necessary, enter a character (or character string) for the incorrect or unknown shape and click one of the following buttons.

Learn

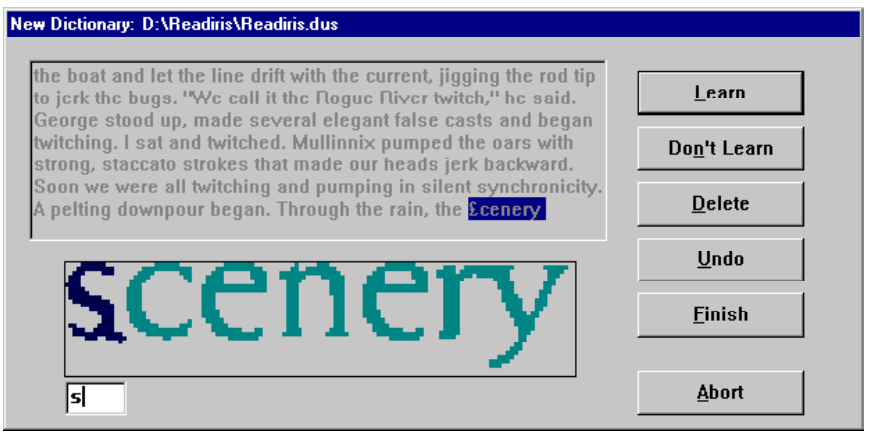
You agree with the proposed solution or correct it. The program saves this doubtful character in the font dictionary as “sure”, final. Future recognition will no longer require your intervention, the shape is considered learnt once and for all.

In the example above, the system stops on a soiled character, and we click "Learn" to accept a shape which cannot be confused with other characters.

Don't Learn

You agree with the proposed solution or correct it. The difference with the "Learn" button is that the learnt symbol gets the status “unsure” in the dictionary. For future recognition, the system will propose the learnt solution but still require a confirmation.

This button is used for symbols which might be confused with others: a defaced "e" which might be mistaken for a "c", a damaged "t" which closely resembles an "r" etc.



The "s" above is seriously damaged - in fact it is close to the "£" symbol -, and you should click "Don't Learn" so as not to confuse it with the pound symbol.

Delete

The displayed form is eliminated from the output. This button is used to ignore “noise” on the documents - spots, coffee stains etc. - which might get recognized as points, comma’s and what have you -, and to erase any other unwanted symbol.

Undo

You go back to correct mistakes. You can undo the nine last decisions.

Finish

The learning process is aborted but the OCR continues in automatic mode. All decisions by the system thereafter are accepted without user validation.

Click this button when you see that the recognition is highly accurate and does not require detailled proofreading.

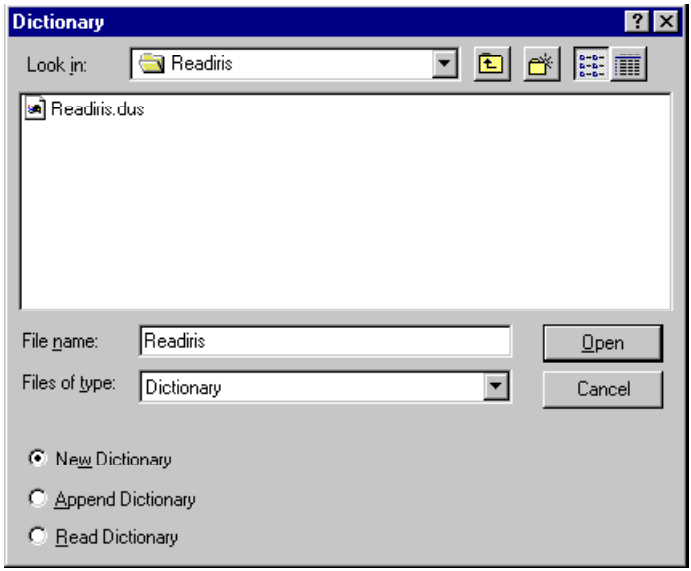
Don't confuse "Finish" with the "Abort" button: with "Abort", no output is generated and you start all over, with "Finish", the text is created, it just isn't proofread in detail!

THE ROLE OF FONT DICTIONARIES

The results of each training session are temporarily held in the computer's memory but can and should be stored in files called "dictionaries" for future use.

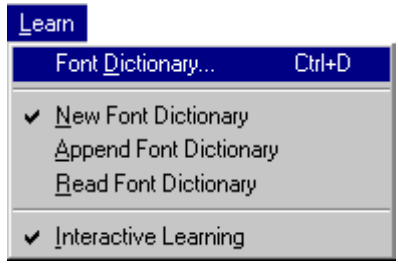
These font dictionaries should be loaded into memory when you want to recognize similar documents in order to make use of the extra intelligence they contain; in this way, Readiris takes into account the intelligence stored in these font libraries. You could say that Readiris gets more intelligence each time you use it!

How does this work? The operation of font dictionaries is controlled by the "Learn" menu: you have to select a dictionary with the command "Font Dictionary" and determine its mode of operation.



Font **dictionaries** are limited to 500 shapes, and you are recommended to create separate dictionaries for specific applications, for instance per type of document. For clarity, you are recommended to give meaningful names to the font dictionaries, for instance REPORT.DUS, PALATINO.DUS etc. Dictionaries have the default extension *.DUS. Training no longer has effect when the dictionary is full: the results of the learning are no longer held in memory or written to a dictionary.

You can set the dictionary mode inside the command "Font Dictionary" or directly under the "Learn" menu. Three dictionary modes are available: new, append and read.



By selecting "New Font Dictionary", you indicate that the training results will be saved in a *new* dictionary. (If you select an existing dictionary, its contents will be erased.)

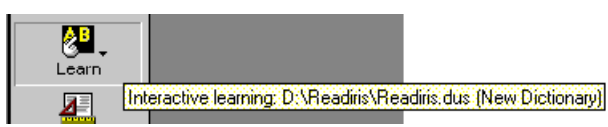
The append mode indicates that the training results will be saved in an *existing* dictionary: the recognition makes use of the extra intelligence already contained in the dictionary, and you add new font shapes to it. In simple terms, this option allows you to build up a font dictionary in several steps.

(When you enter a filename for a new dictionary and activate the “append” mode, an empty font dictionary is created and you complete it.)

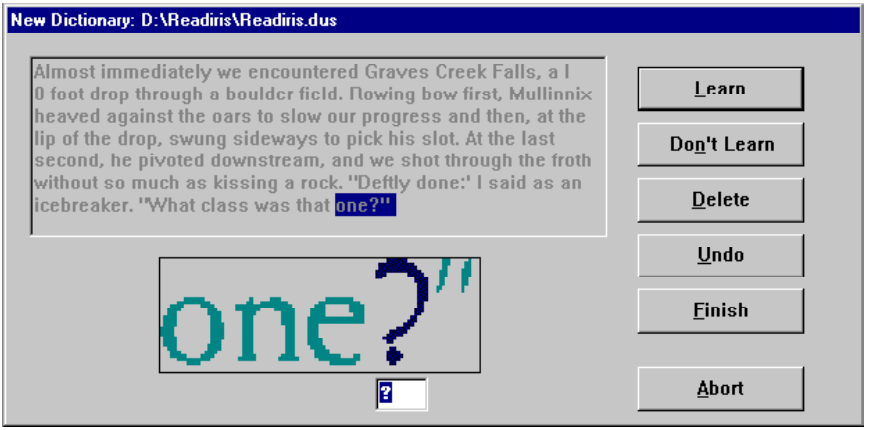
With the last option, "Read Font Dictionary", the dictionary functions in read-only mode: you make use of the dictionary *without* adding new font shapes to it.

Select the new mode when a single page is recognized. To recognize many pages of the same type - pages with the same fonts and printing quality - select the new mode for the first page, the append mode for a few pages more and the read mode for the rest of the document(s). When multipage documents are recognized, scanning a next page automatically puts the user dictionary in the append mode.

Know that the tooltip of the "Learn" button indicates at all times which font dictionary is currently active and in which mode that dictionary operates.



When you enter the interactive learning, the dictionary and its operating mode are indicated in the window title; you should click the "Abort" button and start over in case they are wrong.



SENDING THE RESULT DIRECTLY TO YOUR APPLICATION

The interactive training concludes the character recognition. As Microsoft Word 97 operates as output target by default, your wordprocessor is started up automatically at the end of the recognition (if necessary) and the recognized text is inserted.

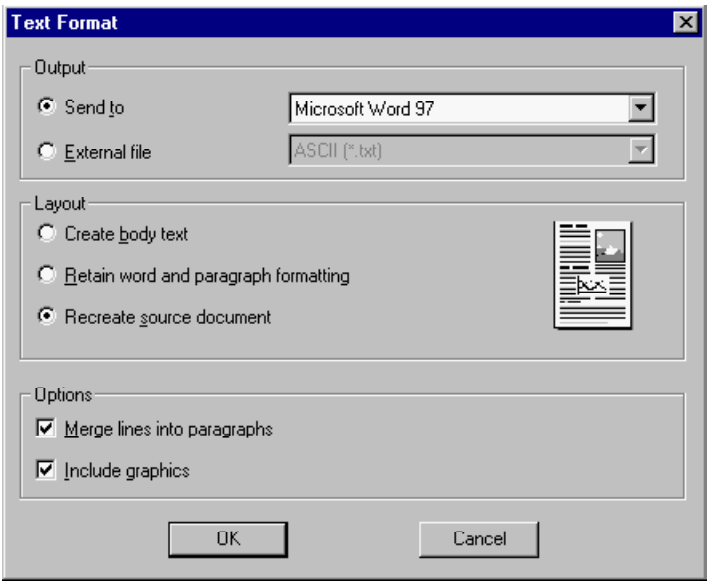
The scanned image is displayed again with the zoning as created to be available for further processing, it stays there until you scan another page.

You have indeed converted a paper document into an editable computer file, be it 10 to 25 times faster than manual retyping! Go ahead and compare it with the image you have inside your Readiris window.

Actually, Readiris offers three different methods when it comes to saving the OCR result: sending the recognized document directly to a target application,

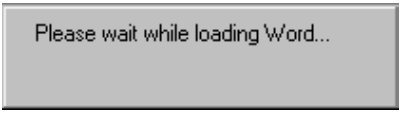
saving the result in an external file and copying the result to the Windows clipboard.

The **output target** is selected using the "Format" button on the main toolbar (or the command "Text Format" under the "Settings" menu).



The "Send to" feature offers a direct OCR link between your scanner and your Windows applications: you **send** the scanned documents directly to your wordprocessor or spreadsheet! Readiris exports recognized documents directly to Microsoft Word 97, to Microsoft Excel and the Windows accessory WordPad.

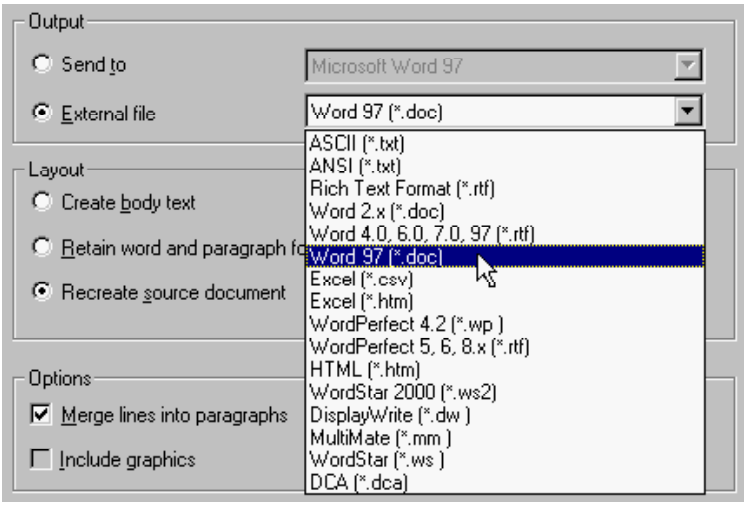
At the end of the recognition, the target application is started up and the recognized document is opened inside a new text file or worksheet.



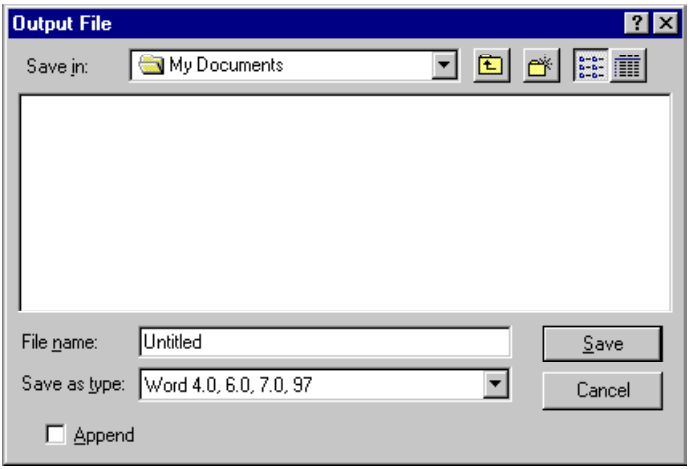
Don't forget that the option "Send to" also allows you to copy the recognized text to the Windows **clipboard**, so there is no strict need to export the result... or save it to an external file!

SAVING THE RESULTS IN A TEXT FILE

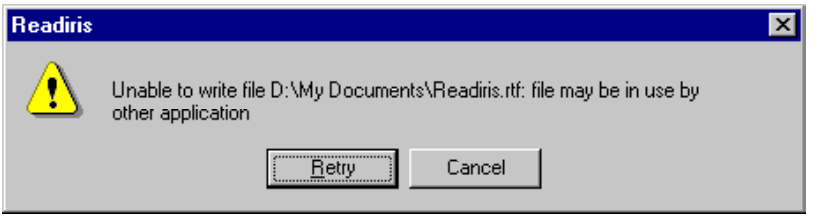
You can indeed write the OCR result to an “external” file. Readiris supports a wide range of file formats incorporating all popular wordprocessors and spreadsheets - Microsoft Word (DOC), RTF and HTML etc.



When you select the option "External File", you are prompted to save the recognized text at the end of the recognition phase.

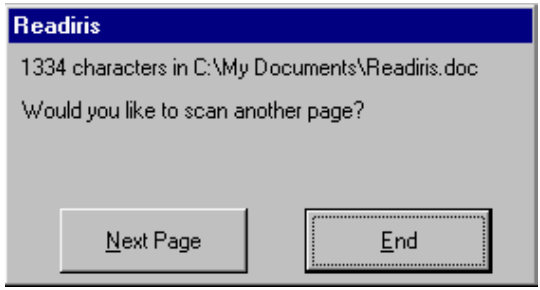


You can create a new file and append an existing text file - that's why you have an "Append" option. You could for instance add two scanned pages of text to a study which you wrote yourself. If you append an existing file, be sure it isn't currently open, because that will prevent you from writing to it!



RECOGNIZING MULTIPLE PAGES

When you click "Save" to save the text, the system prompts you to read another page or not. (If you send the recognized text to a target application or the clipboard, you obviously won't be prompted to save the text.)



At this stage, some brief **statistics** are given on the number of characters you've just read.

You can now open the recognized text with your wordprocessor or text editor, import it into your desktop publishing software or any other text-based application.

But how do you save the text of the additional pages? Or in other words: how do you process documents consisting of multiple pages? It's actually very simple: click "Next Page" when you are prompted to read another page. When you do so, another page will be scanned promptly if your scanner functions as image source. Secondly, the output file and font dictionary are put in the append mode automatically so that you can append the text and continue the font training comfortably.

You can go on recognizing other pages: the new text is appended to the text file each time you save after the recognition.

ORGANIZING THE TEXT OUTPUT

Saving or exporting the text means more than selecting an output method or defining a filename for the output file. You also select a file format and determine the appearance of the recognized text. In short, you have to decide where you want to take the text before you launch the execution.

Some options of the "Format" button allow you to influence the look of the text output.

The **text flow** of the output document is directly influenced by the option "Merge Lines into Paragraphs" as you'll find under the "Format" button.

Keep this option enabled to have Readiris detect the paragraphs: Readiris will then apply the normal **wordwrap** typical of wordprocessors, otherwise, a carriage return is added after each line and hyphenated words remain so! Paragraph detection is enabled by default.

Let's give an example to clear things up. When the first three lines of a column are "The new presi-", "dent waved from the balcony." and "His wife had joined him.", the paragraph detection gives you the following result: "The new **president** waved from the balcony**. His** wife had joined him." The hyphenated parts of the word "president" were "reglued" and a space was added at the end of the first sentence, thus creating naturally flowing text.

Had paragraph detection *not* been enabled, the original layout would have been retained, with a carriage return added at the end of each line.

(The "Format" button contains some formatting options we haven't discussed yet - this will be done shortly.)

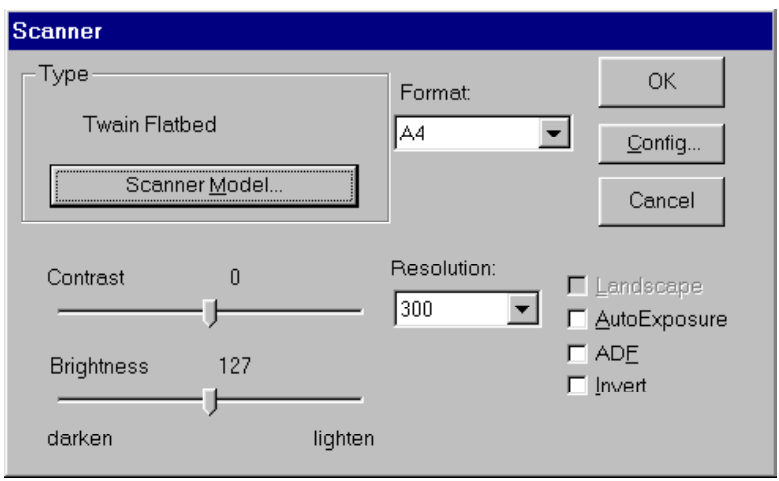
SETTING UP YOUR SCANNER

Let's set our scanner up now. It is assumed that the scanner hardware and necessary drivers are installed correctly.

If your Readiris software licence was bundled with a scanner model, this step probably is unnecessary as your scanner may already be set up under Readiris.

Click the "Scanner" button on the main toolbar.

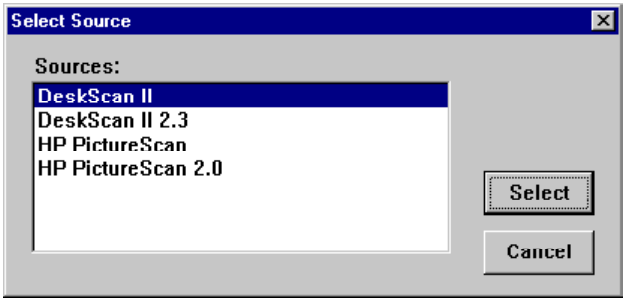
Click the button "Scanner Model" to determine your **scanner model**.



When you select the option "<Image>" as “scanner”, prescanned images function as image source at all times - you won't have even to select the disk as image source with the "Source" button on the main toolbar.

The "Config." button is only available when you scanner allows it. It gives access to some advanced scanning parameters; with Twain scanners, clicking

the "Config." button allows you to select the Twain source. (You can also use the command "Select Source" under the "File" menu.)



Your scanner may also come with a **scanning platform** such as Visioneer PaperPort or HP Document Assistant. Depending on the software bundle you acquired, you may find specialized manuals concerning the scanning platforms on the Readiris CD-ROM.

Once the scanner is selected, the same window may allow you to set the scanning resolution, the page format and orientation, brightness and contrast and may allow you to indicate whether you are going to use the scanner's document feeder. With Twain compliant scanners, all scanning parameters are often set within the Twain interface.

Select a **resolution** of 300 dpi for normal applications, use a higher resolution of 400 dpi for small print (below 10 point) and when the document is very degraded.

Readiris reads **point sizes** of 6 to 72 point (0.08 to 1" or 0.21 to 2.54 cm).

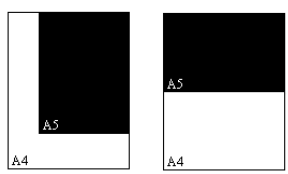
6 point

72 point

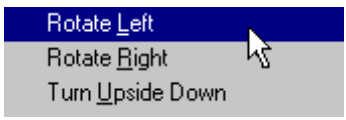
Readiris also recognizes "**drop letters**", large caps that cover several lines. (These can of course be no bigger than 72 point!)

Readiris reads drop letters (also called "drop" caps) that cover several lines and assigns them to their starting line.

By enabling the option "Landscape", you indicate that the selected page orientation is wide ("landscape") instead of tall ("portrait"). The page orientation actually applies to reduced page formats: on an A4 flatbed scanner, you can scan, say, A5 pages (half that big) in portrait or landscape format, but you can obviously only scan the full A4 surface in one direction!



Whenever you need to adjust the page orientation, you can use the **rotation** tools on the image toolbar. (Corresponding commands are found under the "View" menu.)



Three rotation directions are available: to the left, to the right and upside down. Rotation takes a few seconds as the image itself is updated, not just the display on-screen.

Set the **brightness**, and, if available, the **contrast**. The contrast setting is only available on some scanners. Drag the trackbar to darken or brighten the document; the selected values are represented numerically.

Finally, the option "Invert" allows you to generate **“inverted” images** - activate this option to process full pages with white text on a black background.

SAVING DEFAULT SETTINGS

Set all scanning parameters correctly and click the command "Save Default Settings" under the "File" menu to save the current settings as default settings for future use.

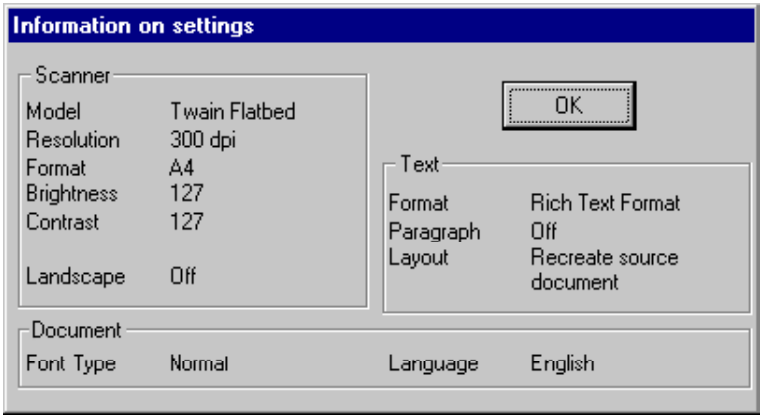
Settings files contain more than the scanner **settings**: they also determine whether you are going to use interactive learning, which font dictionary is used (and its mode), which language and font type - for instance a normal, proportional font - the documents have, which output mode and layout options are used - for instance body text sent to WordPad - etc. In short, *all* operational settings of Readiris are stored in the settings files.

SAVING SPECIFIC SETTINGS

The default settings will obviously be used at each startup, but you can save specific settings as well to avoid having to redefine the operational parameters. The commands "Save Settings" and "Load Settings" under the "File" menu take care of this.

Let’s give an example: if you regularly have to OCR English documents with a specific layout, you are recommended to create a settings file for this type of document. You would then select "English" as the document language, load a specific zoning template to avoid having to reapply the same windowing each time, disable learning but activate a font dictionary in the “read” mode because the same typefaces are used systematically etc.

If you are unsure what the current settings are, you don’t have to “plunge” into every menu and command to discover what they are. You can use the command "Info" from the "File" menu to get an overview.

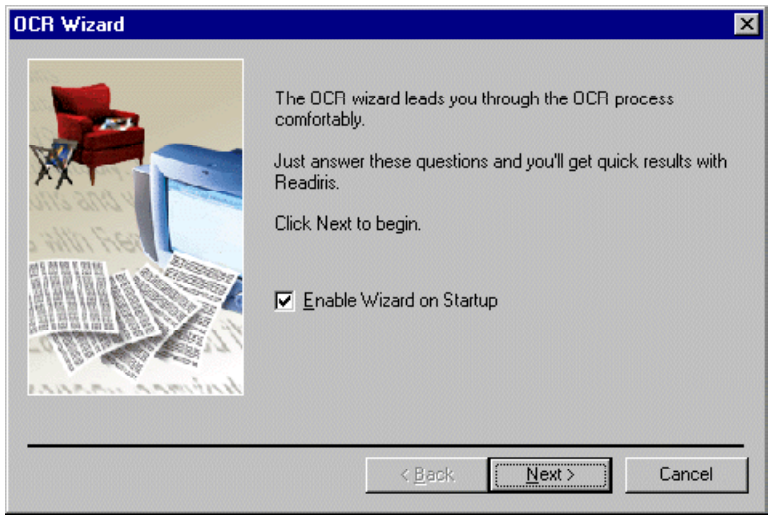


LETTING THE OCR WIZARD WORK FOR YOU

Now that our scanner is set up, we want to get started capturing documents. Instead of going through all the parameters, we'll use the **OCR wizard**, a very comfortable way of recognizing pages.

Click the "OCR Wizard" button on the main toolbar (or select the command "OCR Wizard" under the "Process" menu).

The wizard guides you through the OCR process comfortably: answer a few simple questions and you'll obtain quick and easy results with Readiris.



Note that the OCR wizard starts running each time you start up Readiris; you can avoid this by disabling the option "Enable Wizard on Startup" in the first screen of the wizard (and with the equivalent option under the "Settings" menu).

RECOGNIZING PAGES AUTOMATICALLY

The OCR wizard is a semi-automatic way of recognizing pages. Readiris also allows *fully* automatic recognition: instead of being taken through the parameters step by step, we will now recognize a page immediately, without any interruption.

To replace the "OCR Wizard" button on the main toolbar by the "Auto" button, disable the option "Enable Wizard on Toolbar" under the "Settings" menu.

Select the scanner as image source with the "Source" button and click on the "Auto" button (or select the command "Automatic OCR" under the "Process" menu).

Automatic OCR means that a page is successively scanned, windowed by page analysis or a zoning template and recognized without interactive learning. All you have to do is initiate the scanning and save the recognized text, the intermediate steps are handled by Readiris.

READIRIS RECREATES YOUR DOCUMENT LAYOUT

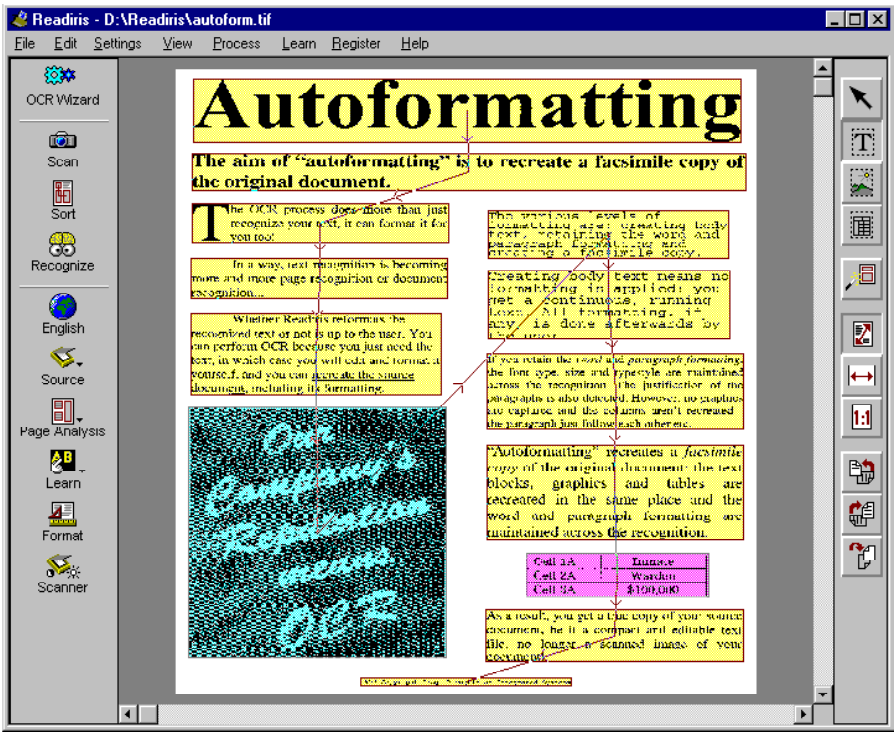
Automatic recognition, which renders the recognition process automatic, should *not* be confused with autoformatting! “Autoformatting” means that Readiris recreates a **facsimile copy** of the scanned document: the word, paragraph and page formatting of your original document are applied.

Similar typefaces (serif and sans serif, proportional and fixed, normal and condensed) are used as in the source document, the point sizes and typestyles (bold, italic and underlined) are maintained across the recognition. The tabs and the alignment (left, centered, right and justified) of each text block are recreated. The placement of columns, text blocks and graphics follows your original document.

In other words, Readiris allows you to archive a true copy of your documents, be it a editable and compact text file instead of a scanned image!

All this implies that the sorting of windows only *partially* applies when “autoformatting” is used: you can include and exclude zones, but any re-ordering of zones is simply ignored!

Here’s an example of how it works. To get acquainted with this feature, open the image AUTOFORM.TIF which is found in your Readiris folder.

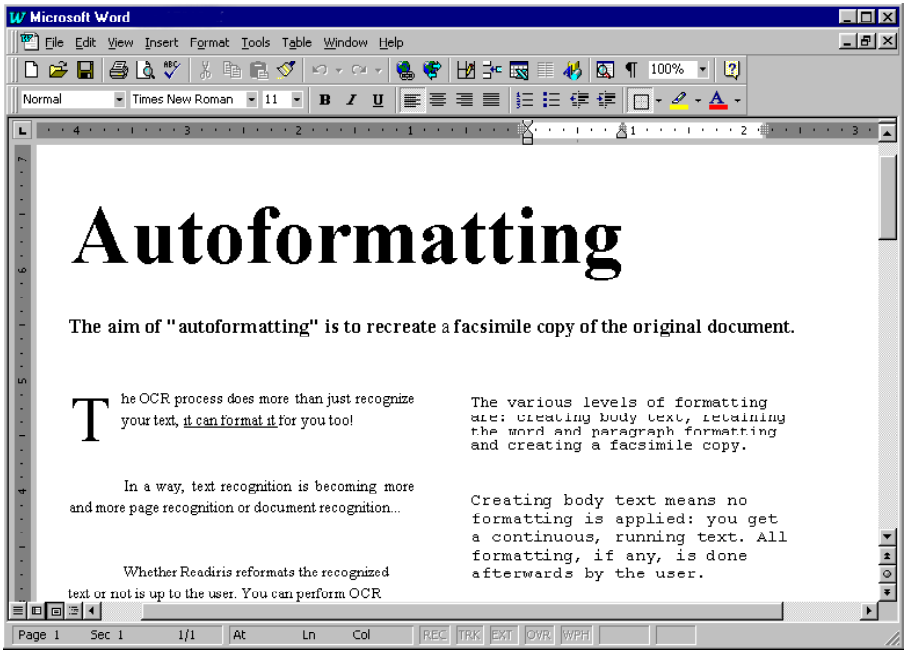


Click the "Format" button on the main toolbar and choose to send the OCR result to Microsoft Word or select the RTF (Rich Text Format) or Word (DOC) format. Secondly, select "Recreate Source Document" as layout option. (The option "Merge Lines into Paragraphs" is enabled by default to apply wordwrap within the paragraphs.)

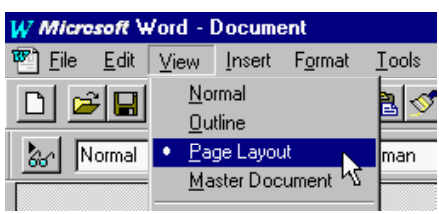
Note that layout reconstruction is limited to the Word (DOC) and RTF format, and to documents sent directly to Microsoft Word 97. On the plus side, the Word (DOC) and RTF formats are widely used text formats that can be opened by any popular wordprocessor.

Other, “poor” formats generating “plain” text such as ASCII, ANSI etc. do *not* support advanced formatting codes and therefore cannot offer autoformatting. Similarly, the target application WordPad is a “reduced” text editor, not a fully featured wordprocessor; WordPad may open RTF files but ignores most formatting codes such as text frames, alignment etc.

When the recognized text is opened using a wordprocessor, the text looks like this without *any* intervention by the user.



To see the effect correctly, you need to enable the “WYSIWIG” mode of your wordprocessor, mostly called “page layout” mode. However, if you send the recognized document directly to Microsoft Word, the “page layout” view is activated automatically!



In short, Readiris not only recognizes your texts, but can format them for you as well. OCR isn't just text recognition anymore, it is becoming more and more **page** or document **recognition** as well!

TEXT FORMATTING, PART 2

The other layout options are "Create Body Text" and "Retain Word and Paragraph Formatting".

As the icon on the right side illustrates, creating **body text** means you create a non-formatted, “running” text. The text will be captured, but its formatting is entirely ignored. Use this option when you just need to recapture a text but not its layout.

(Generating Asian text implies creating body text - you cannot apply “autoformatting” or retain the word and paragraph formatting. Secondly, the number of file formats is reduced.)

The option "Retain Word and Paragraph Formatting" represents the middle road: the **word formatting** - font type (serif - sans serif, proportional - fixed, normal - condensed), point size and typestyle (bold, italic and underlined) - is retained across the recognition, and so is the **paragraph formatting** - the tabs and the alignment (left, centered, right and justified).

Don't confuse this formatting option with “full” autoformatting: this option just puts one paragraph after the other, it does not recreate columns or copy the relative position of the various zones. Nor will it include the graphics as full autoformatting can do.

SAVING GRAPHICS SEPARATELY

In our example, the graphic was included in the recognized text; whether this is the case depends on the formatting option "Include Graphics". Saving graphics inside the text is only possible with “full” autoformatting -, not with “poor” text formats such as ASCII, ANSI etc.

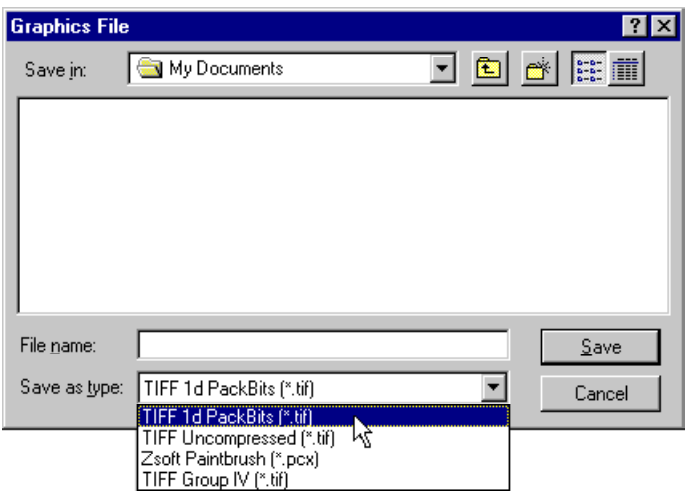
Still, with Readiris, you can save graphics without performing text recognition. As the OCR software Readiris generates **black-and-white images**, no greyscale or color images, it doesn’t make any sense to scan photographs with Readiris, but you can capture lineart graphics effortlessly.

How? Draw a graphic zone around the illustrations, cartoons etc. you need. Creating graphic windows manually is done in the same way as drawing text and table windows, simply select the "Graphic Window" tool now.

(Similar to the other window types, the tooltip of the graphic window tool tells you how many graphic windows there are. And you can press the Alt key while you select a window to display its type and its coordinates.)

Next, choose the command "Save Graphics" under the "File" menu.

You are prompted to specify a filename.

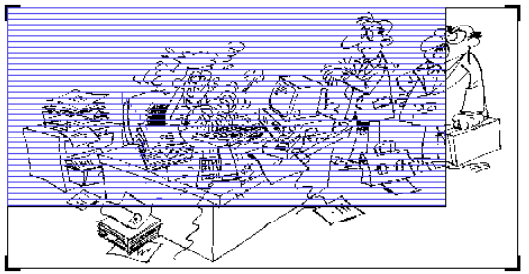


Determine which graphic file format you will use. Select a format that's supported by your paint or photo retouching software. The TIFF and Paintbrush (PCX) formats are available. (Paintbrush files can always be opened with the Windows accessory Paint.)

The graphics are saved in a single file. You don't have to limit yourself to a single graphic, but if you draw several graphic windows, they will be collected, “stacked” in a single file. (You can use the "Crop" command of your paint or photo retouching program to separate them.)

Sides smaller than 1 mm are not allowed - bitmaps of that size hardly contain any information. “Irregular”, non-rectangular windows are invisibly converted into rectangles: Readiris covers the maximal surface based on the largest coordinates. In the example below, the graphic window with the black border is completed by the shaded area.

ur computer automatically.

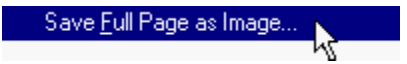


nt is read by your scanner. This device acts as the "eye" of yo

READING FAXES AND DEFERRED RECOGNITION

Saving images as image files opens another possibility: you can save the *full* page and perform **deferred OCR** on it later on. That's what we did with the prescanned images of our tutorials.

Simply scan the document and select the command "Save Full Page as Image" under the "File" menu. You'll again be prompted to save the entire page as TIFF or Paintbrush (PCX) file.



You can now select the disk as image source and open the image file with the "Open" button (or with the corresponding command under the "Process" menu). (If you use the "Open" command under the "File" menu, you don't even have to update the image source.)

Readiris opens black-and-white TIFF images (uncompressed, packbits, Group 3 and Group 4 compressed), Paintbrush (PCX) images and Windows bitmaps (BMP). This capability is particularly useful to convert your **faxes** into editable text files!

If you have any influence over your correspondents, ask them to send faxes with the “fine” quality - those faxes have the higher resolution of 200 dpi and will yield better OCR results.

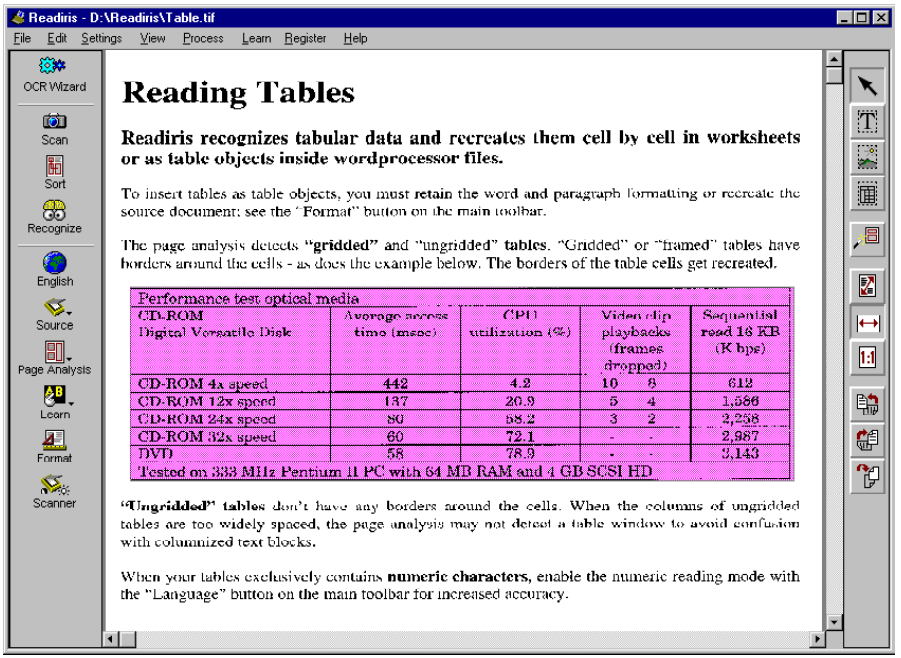
Don't forget that you can use “**drag and drop**” to open images: drop an image file from the Windows Explorer onto the image zone of Readiris and it is promptly opened!

RECOGNIZING TABLES

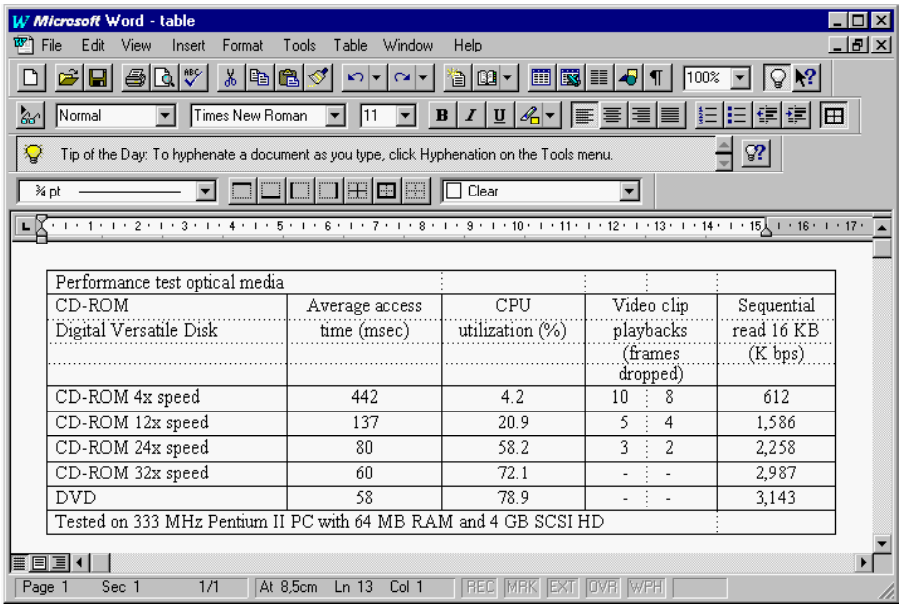
So far, we've recognized texts and faxes and we've saved graphics. Let's process a table now. Take a table of figures and scan it, or open the sample image TABLE.TIF in your Readiris folder.

Actually, the image TABLE.TIF contains two tables, and that's no coincidence! The page analysis zones them as table windows, and Readiris will reconstruct them for you by recreating the tables cell by cell in your spreadsheet or by inserting a table object inside your wordprocessor files.

Let's explore the different solutions, starting with the “gridded” or “framed” table - it has borders around the cells.

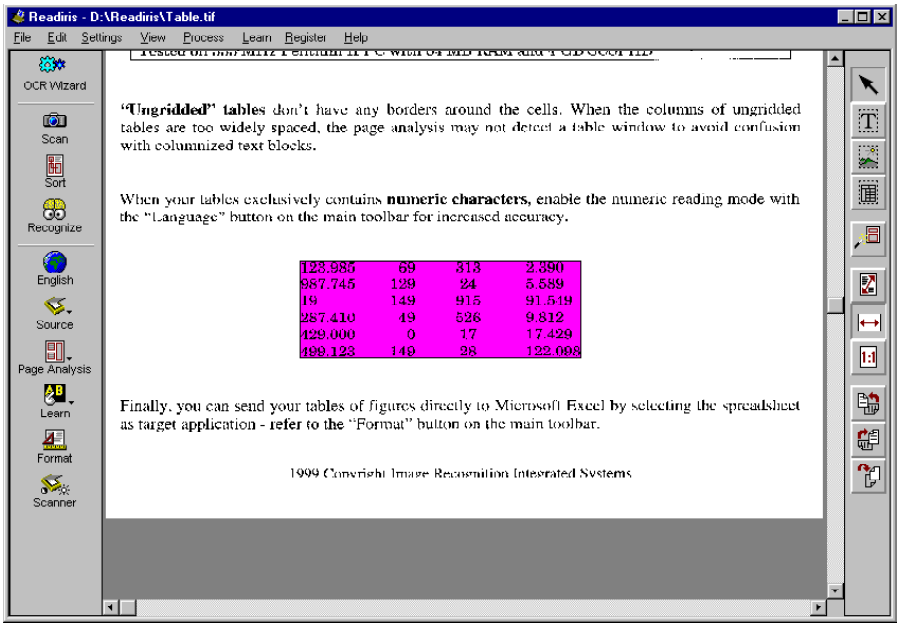


Run the recognition with the layout option "Retain Word and Paragraph Formatting" or "Recreate Source Document" enabled and the table gets recreated. Open your wordprocessor to have a look at the result. (You could obviously have included the text paragraphs in the text file as well.)



Performance test optical media					
CD-ROM Digital Versatile Disk	Average access time (msec)	CPU utilization (%)	Video clip playbacks (frames dropped)		Sequential read 16 KB (K bps)
CD-ROM 4x speed	442	4.2	10	8	612
CD-ROM 12x speed	137	20.9	5	4	1,586
CD-ROM 24x speed	80	58.2	3	2	2,258
CD-ROM 32x speed	60	72.1	-	-	2,987
DVD	58	78.9	-	-	3,143
Tested on 333 MHz Pentium II PC with 64 MB RAM and 4 GB SCSI HD					

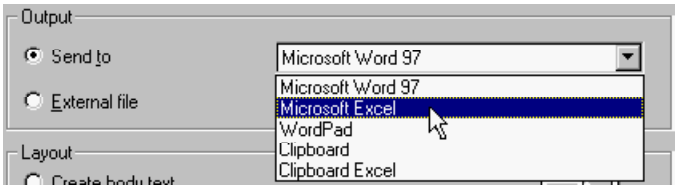
Now the “ungridded” example - it has no borders around the cells. Note that the page analysis nevertheless detects the table!



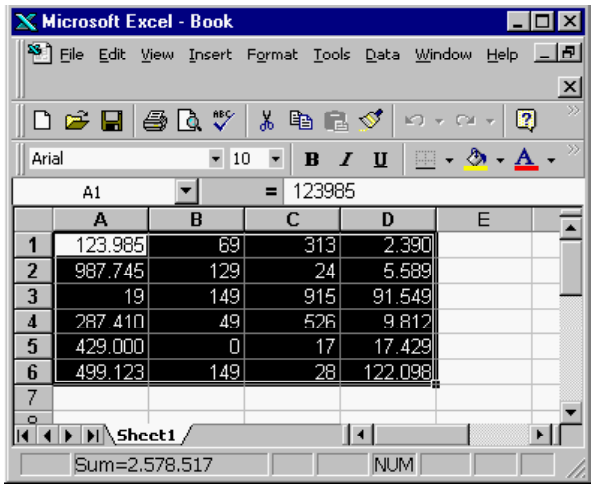
For optimal OCR accuracy, you should limit recognition to the **numeric symbols** with the "Language" button. (The numeric mode is not strictly numeric, it includes the symbols 0 to 9, +, *, /, %, , (comma), . (dot), (,), -, =, $ and £.)

As you can only do this when the table doesn't contain any alphabetic symbols - otherwise the text portions won't be recognized correctly - we can activate the numeric mode now but couldn't do it for the first table.

This time, we will send the OCR result directly to the spreadsheet Microsoft Excel, so we select Excel as target application under the "Format" button.



The spreadsheet is started up automatically and the result looks like this: the typical table structure with rows and columns is recreated, and you are immediately ready to process the data.



Also note that you can also send tables to the clipboard - hence the option "Send to Clipboard Excel" - and save them in an external file - hence the file format Excel (CSV stands for “comma delimited” data).

You may come across “ungridded” tables the page analysis does not detect as table zones because the columns are too widely spaced - Readiris tries to avoid confusion with columnized text blocks. To create a table window manually, click

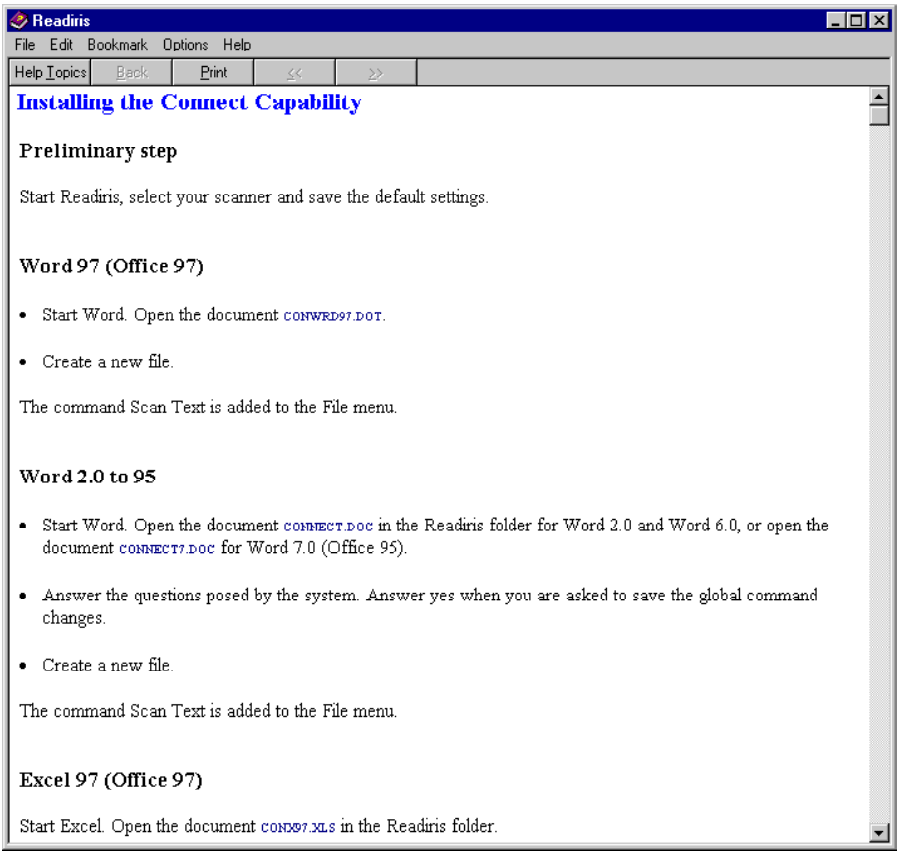
on the "Table Window" tool in the image toolbar and proceed as usual; the button's tooltip again indicates the number of table windows.

THE "CONNECT" FEATURE, ANOTHER DIRECT LINK

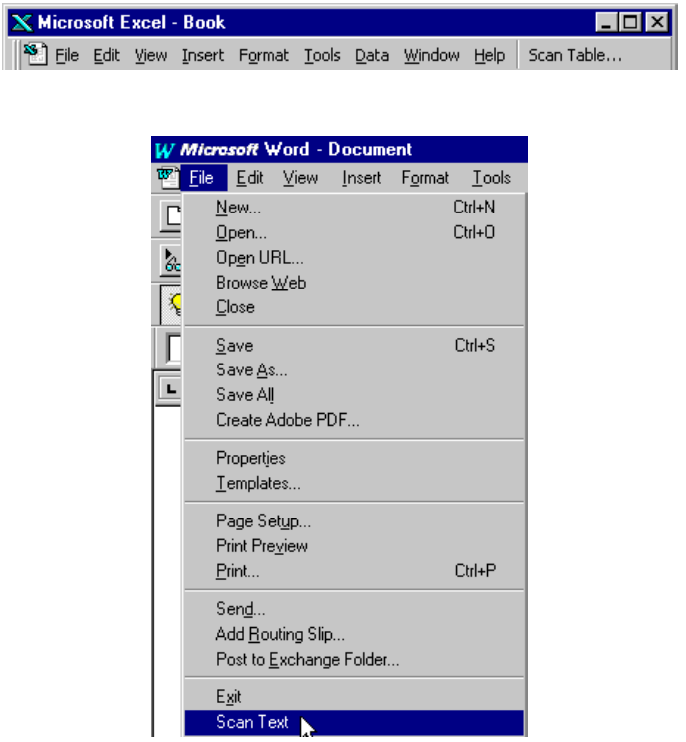
Actually, there's yet another way of recognizing tables of figures: you can do it from within your spreadsheet!

Similar to the "Send to" feature, which exports the reading result automatically, the "Connect" feature offers a direct OCR link between your scanner and your Windows applications. The only difference is the "inverse" way of proceeding: you don't recognize your documents inside Readiris to export the result to a "target" application, Readiris is called up from within your application!

As there are some manual steps no **installation** procedure can take care of for you, you need to check the on-line help system or the file CONNREAD.DOC in your Readiris folder to learn how to install it - it takes a macro to use the "Connect" capability from within Word, Excel and WordPerfect. (That "Read Me" file is displayed automatically at the end of the installation program.)



When correctly installed, the “Connect” feature adds a new command to the menus of your application. In the examples below, the command "Scan Text" is added to the "File" menu of Word, and the menu "Scan Table" is added to the menu bar of Excel.



Here's how it works: Readiris may *not* run in the background when you launch the “Connect” macro. Click on the new command in your application menu to run Readiris. The “Connect” interface may ask you some questions before Readiris will start running. Proceed as usual and quit the “Connect” interface when you are through. The recognition results are inserted at the current cursor position.

GETTING ON-LINE HELP

This concludes our overview of Readiris. Some last-minute information may not be included in this manual. We thus recommend you to consult the on-line help system for additional information on Readiris.

Go to the "Help" menu to do so. The command "Help Topics" and its shortcut key F1 allow you to navigate through the many help topics.