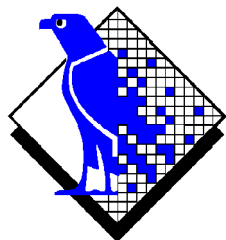




READIRIS



USER'S GUIDE



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OCR technology by I.R.I.S.
Connectionist and AutoFormat technology by I.R.I.S.

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Proximity Technology Inc.
Copyright 1995 All rights reserved
William Collins Sons & Co. Ltd.

The spelling of this product is based on
Proximity Linguistic Technology
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SAVE TIME, NO MORE RETYPING!

Congratulations on acquiring Readiris. This software package will undoubtedly be of great help in recapturing your texts and tables.

As efficient as computers are, you have to key in your information first. If you have ever retyped a 15 page report or a large table of figures, you know how tedious and time-consuming it can be. Use this state-of-the-art OCR package to automatically enter text in your applications and you'll acquire an unprecedented level of efficiency and comfort!

Scan a printed or typed document, indicate the zones of interest - or have the system detect them for you - and execute the character recognition. Documents composed of many pages are processed from start to finish in a single effort. A few mouse clicks beat long hours of work as Readiris converts your paper documents into editable computer files: it's 10 to 25 times faster than manual retyping.

With the automatic mode of operation, the user's effort is reduced to a single click: he initiates the scanning and saves the text result, all intermediate steps are taken care of by Readiris. The wizard guides you through the OCR process comfortably: answer a few simple questions and you'll obtain quick and easy results with Readiris. Not only can you send the reading results directly to your wordprocessor and spreadsheet, thanks to the "Connect" capability, you can even access the OCR function from within your favourite Windows applications! To recognize faxes, you can drag the fax files from the Windows Explorer to the Readiris application window.

Readiris recognizes tabular data and recreates them as worksheets or as table objects inside your wordprocessor; your numeric data are immediately ready for further processing.

Based on the Connectionist technology from I.R.I.S., Readiris represents the best OCR has to offer. Font-independant feature extraction is complemented by self-learning techniques derived from a proprietary neural network. The system can learn new characters through context analysis: linguistic knowledge about syllables and words improves the OCR performance.



Readiris supports up to 55 languages: all American and European languages are supported, including the Central-European languages, Greek and the Cyrillic (“Russian”) languages. (Optionally, you can read Japanese and Simplified Chinese.) Readiris even copes with mixed alphabets: the software detects “Western” words that pop up in Greek, Cyrillic and Asian documents - many untranscribable proper names, brand names etc. are written using the Western symbols.

Readiris uses linguistics *during* the recognition phase, not after it. As a direct result, Readiris recognizes documents of all kinds with top accuracy, including low-quality documents, faxes and dot matrix printouts. It copes beautifully with badly scanned and copied documents containing too light or dark font shapes. Joined characters (“ligatures”) are resolved and fragmented forms, such as dot matrix symbols, are recomposed.

User verification in pop-up style not only flags doubtful characters but also increases the system's precision. All solutions confirmed by the user are memorized, increasing speed and confidence as you go along. Using Readiris means rendering it more intelligent each time! This powerful learning tool allows you to train Readiris on special characters such as mathematic symbols and dingbats but also to handle distorted fonts as you will find in real documents.

To increase your productivity further, Readiris not only recognizes your texts, but can *format* them for you as well! Make use of “autoformatting” and Readiris recreates a facsimile copy of the scanned document: the word, paragraph and page formatting of the original document are retained. Similar typefaces are used, the point sizes and typestyles as used in the source document are maintained across the recognition. The placement of columns, text blocks and graphics follows your original documents. When a document contains tables, Readiris reorganizes them in real cells and recreates the cell borders of the original tables.

In other words, Readiris allows you to archive a true copy of your documents, be it editable and compact text files instead of scanned images! Various levels of formatting are available, the choice is up to the user.

Readiris supports a wide range of popular scanners: numerous flatbed scanners, sheetfed scanners, hand-held scanners and “all-in-one” multifunctional peripherals (“MFPs”) can be used. Readiris also supports the Twain scanning stan-

dard and some scanning platforms such as Visioneer PaperPort or HP Document Assistant.

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CREDITS AND COPYRIGHTS

The Readiris software is designed and developed by I.R.I.S. OCR, Connectionist and AutoFormat technology by I.R.I.S. I.R.I.S. retains the copyrights to the Readiris software, the OCR technology, the on-line help system and this manual.

AutoFormat, Cardiris, Connectionist, the I.R.I.S. logo and Readiris are trademarks of I.R.I.S.

The spelling of this product is based on Proximity Linguistic Technology. Merriam Webster Inc. and Williams Collins Sons & Co. retain all rights to the Proximity/Merriam Webster Linguibase.

Acrobat Reader is a (registered) trademark of Adobe. Document Assistant is a (registered) trademark of Hewlett-Packard. Excel, Windows and Word are registered trademarks of Microsoft. Intel is a registered trademark of Intel. JetSuite is a (registered) trademark of JetFax. PageSuite is a (registered) trademark of Microtek. PaperEase is a (registered) trademark of Primax. Visioneer is a (registered) trademark of ScanSoft. WordPerfect is a registered trademark of Corel.

Chapter 1

INSTALLATION

This chapter discusses the system requirements and installation of the Readiris software.

SYSTEM REQUIREMENTS

This is the minimal system configuration required to use Readiris:

- a 486 based Intel PC or compatible. A Pentium based PC is recommended.
- 16 MB RAM. 32 MB RAM is recommended under Windows NT and to make use of the "Connect" capability.
- 30 MB free disk space. 25 MB of disk space suffices when you leave the electronic manual on the CD-ROM.
- the Windows 98, Windows 95 or Windows NT 4.0 operating system.

Note that some **scanner drivers** may not work under Windows NT! Refer to the documentation supplied with your scanner to see which platforms are supported.

INSTALLING THE READIRIS SOFTWARE

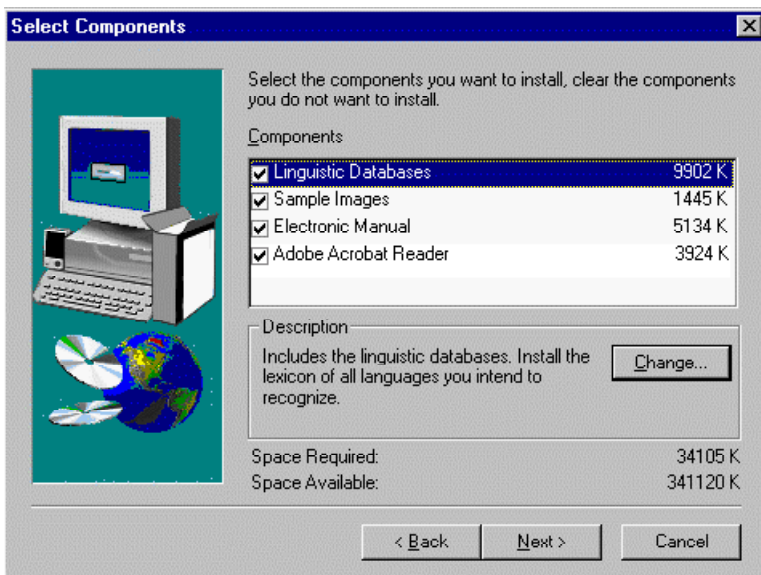
The Readiris software is delivered exclusively on an **autorunning CD-ROM**. To install, simply insert the CD-ROM in your CD-ROM drive and wait for the installation program to start running. Follow the on-screen instructions.

Should the installation not begin to run when the CD-ROM is inserted in your CD-ROM drive, run the setup program *menu.exe* to install the software.



Users of Windows NT must ensure that they have the necessary **access rights** - contact the system administrator if necessary.

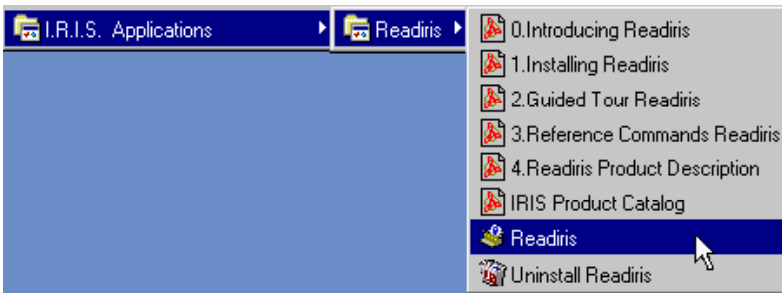
Some installation options are offered. Be sure to install the **linguistic databases** of all languages you intend to read. By default, all lexicons are installed. You are recommended to install the **sample images** which are used in the tutorials of this manual.



Similarly, the **electronic manual** is by default copied to your hard disk. You can also leave it on the CD-ROM. It is supplied in the Adobe Acrobat PDF format. Be sure to install the Acrobat Reader software required to access the software documentation, should this be necessary.



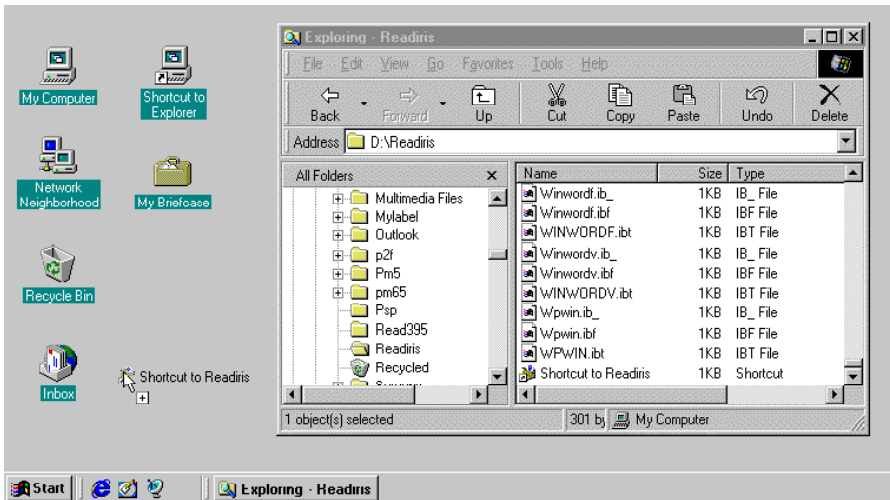
The submenu "I.R.I.S. Applications - Readiris" under the "Programs" menu is created automatically by the installation program.



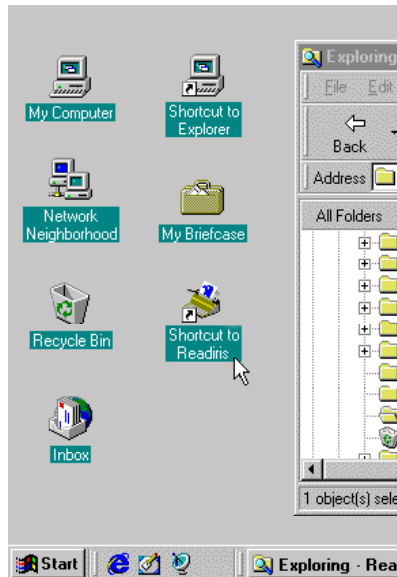
COMFORT ISN'T LAZINESS!

Some additional steps can be completed for maximal ease of use of Readiris.

It may be useful to create a **shortcut**. The Windows documentation and on-line help discuss several methods of creating shortcuts. One easy way of proceeding is by dragging the Readiris application from the Windows Explorer to your desktop.



As a result, you'll be able to start the Readiris software directly from your desktop.



INSTALLING THE “CONNECT” CAPABILITY

Installing the “Connect” capability implies some **manual steps** which no installation program can take care of.

The information needed to install the “Connect” capability can be found in the Readiris on-line help system and in the file CONNREAD.DOC.



For optimal comfort, the “Read Me” file on the “Connect” capability is displayed automatically at the end of the installation program, otherwise it is available under the Readiris folder.

UNINSTALLING THE READIRIS SOFTWARE

There are only two correct ways of uninstalling Readiris: using the Readiris “uninstall” program and using the Windows (un)install wizard. You are strongly recommended *not* to uninstall Readiris or its software modules by manually erasing the program files.

Readiris “uninstall” program

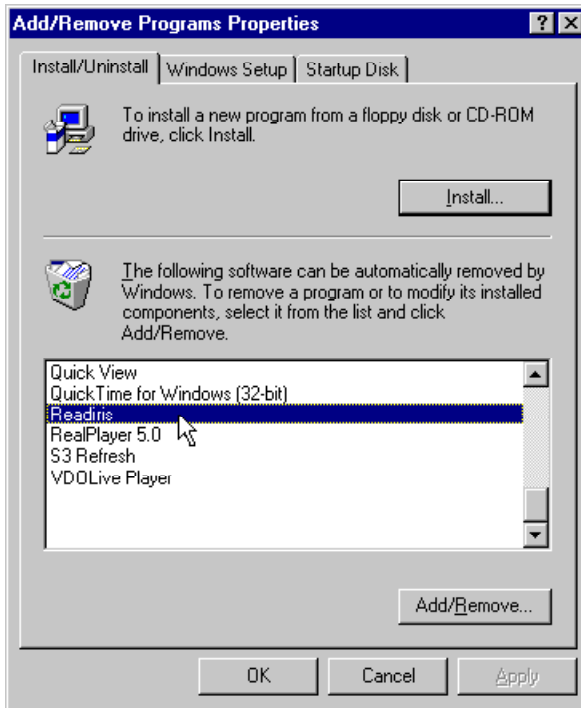
Select "Uninstall Readiris" under the submenu "I.R.I.S. Applications - Readiris" to start the Readiris “uninstall” program and follow the on-screen instructions.



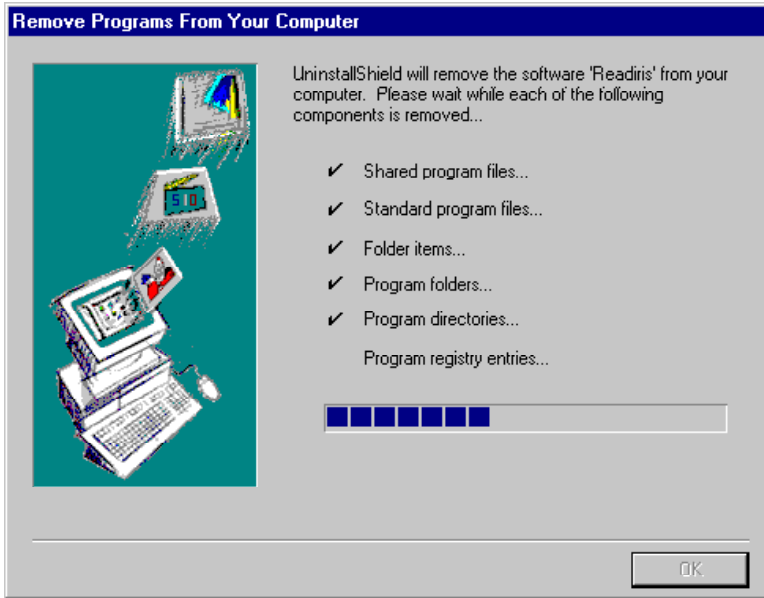
Windows (un)install wizard

Execute the following steps to make use of the Windows (un)install wizard.

- Click "Settings" under the "Start" menu of Windows and go to the "Control Panel".
- Click the icon "Add/Remove Programs" under the control panel.
- Readiris is listed under the "Install/Uninstall" tab.

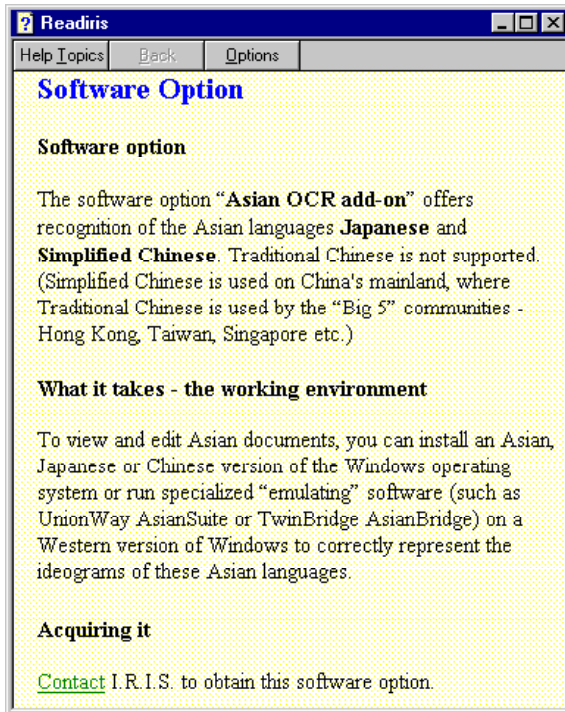


- Select Readiris and click the "Add/Remove" button to remove the Readiris software.
- Follow the on-screen instructions.



INSTALLING SOFTWARE OPTIONS

There's a single software option available for the Readiris software: the Asian OCR "add-on". It allows you to read Japanese and Simplified Chinese. This software is again delivered on an autorunning CD-ROM.

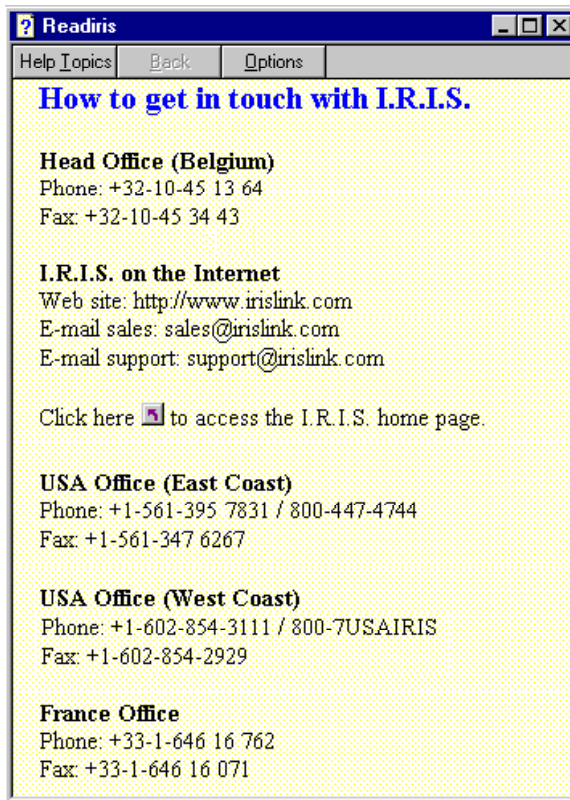


INSTALLING RELATED PRODUCTS

Depending on the software bundle you acquired, Readiris may be supplied with an evaluation version of the related product Cardiris, a **card organizer**.

If this free software package is included on your Readiris CD-ROM, it is also installed using the autorunning CD-ROM and following the on-screen instructions.

Contact I.R.I.S. to learn more about complementary software; the command "Contact I.R.I.S." under the "Help" menu of Readiris details in which ways you can get in touch with I.R.I.S.





INSTALLED FILES

The installation program has created a folder where the Readiris files are located. Never try to uninstall Readiris or some of its modules by manually erasing the program files, use the Readiris “uninstall” program or the Windows (un)install wizard instead. See above.

Read Me files and documentation

README.DOC General “Read Me” file

CONNREAD.DOC “Read Me” file on “Connect” capability

Depending on the software bundle you acquired, the Readiris CD-ROM may contain some additional “Read Me” and Acrobat PDF files - these files are *not* installed on your hard disk!

They discuss how to set up the multilanguage support of Windows - this Windows “service pack” is mandatory to recognize “exotic” languages such as Greek and the Cyrillic languages - and the “Twunk” (“Twain thank”) software utility to solve some problems with Twain drivers.

You may also find specialized manuals concerning the scanning platforms Visioneer PaperPort and Microtek PageSuite on the CD-ROM.

Scanner drivers

Finally, you may find some scanner drivers on the Readiris CD-ROM under the folder “Drivers”.

I.R.I.S. offers no guarantee that drivers are supplied for your scanner model or that the drivers supplied on the Readiris CD-ROM will work (well) with your scanner model.

Don’t hesitate to contact your scanner manufacturer or its representative should problems with scanner drivers continue. Most manufacturers allow you to download the latest versions of the scanners drivers from their web site.

User files

The user can create font dictionaries, zoning layouts and settings files.

- | | |
|-------|---------------------|
| *.DUS | Font dictionaries |
| *.WDW | Windowing templates |
| *.IBT | Readiris settings |

REGISTER TO VOTE!

Don't forget to register your Readiris licence! Doing so will allow us to keep you informed of future product developments and related I.R.I.S. products. The registration benefits, including free product support and special offers, are strictly limited to registered users.

You can register in many ways: by sending in your registration card or faxing its electronic counterpart, by calling I.R.I.S. during working hours and by filling out a registration form on the I.R.I.S. home page!

The Readiris **registration wizard** as you'll find under the menu "Register" of the Readiris software can guide you through the registration process comfortably.



Depending on the software version you acquired, you'll receive the **softkey** in return as may be needed to continue using the Readiris software after one month.

GETTING PRODUCT SUPPORT

The command "Product Support" under the "Help" menu of Readiris details how you can get technical support. Please describe the phenomenon you experi-



ence clearly and include all relevant data concerning Readiris, your scanner and your computer system.



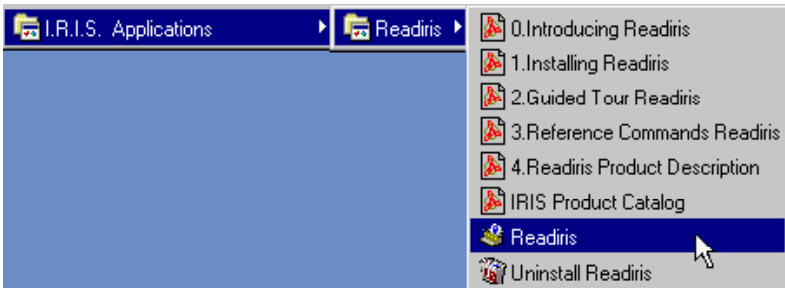
Chapter 2

GUIDED TOUR

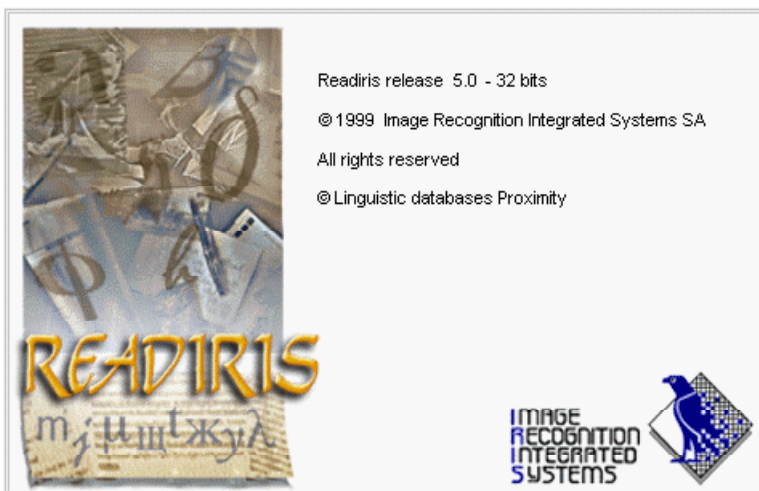
Readiris is a state-of-the-art OCR package equipped with numerous advanced features. We will discuss all major features in this chapter and add many tips and hints concerning the use of Readiris.

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.



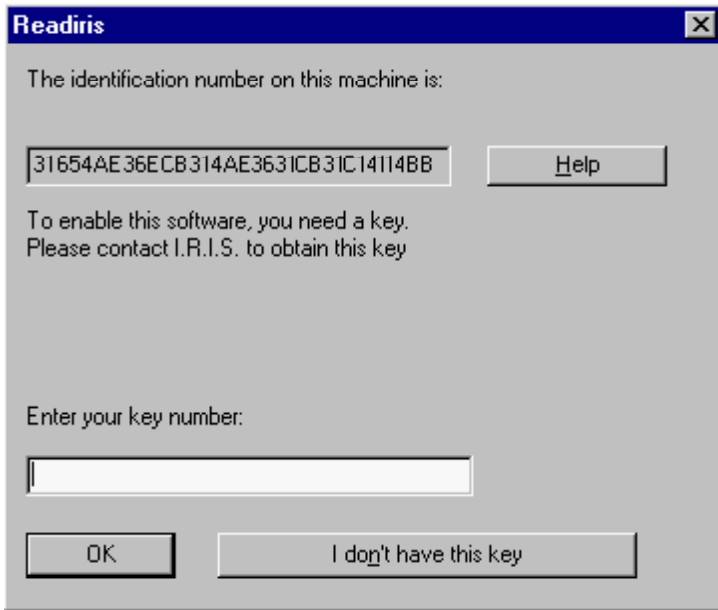
The next window concerns the OCR wizard; click Cancel for the time being.

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.

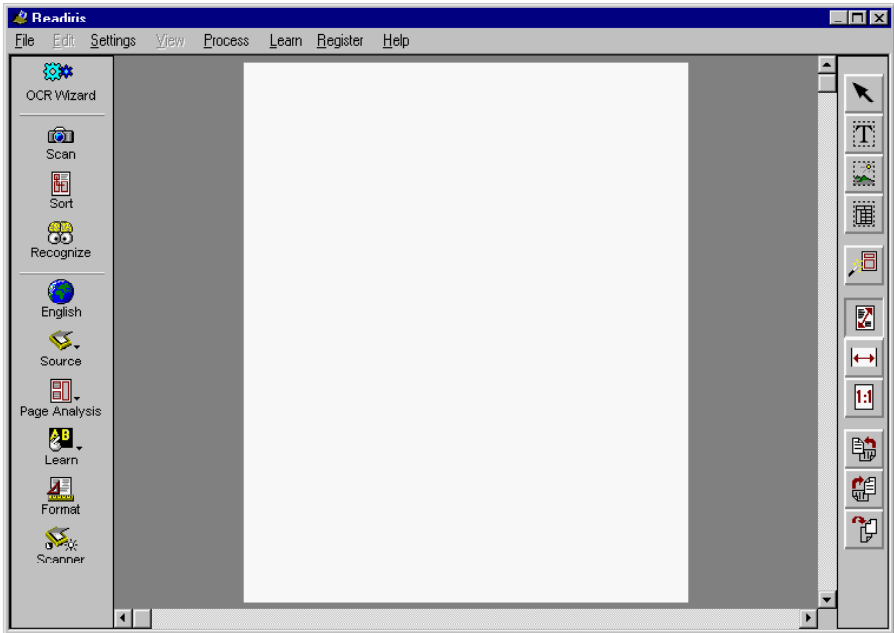
If this is the case, the use of Readiris is limited to 30 days, and by registering, you receive a free **softkey** from I.R.I.S. to continue using the software after the first month.

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



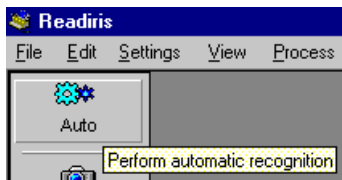
DISCOVERING THE READIRIS INTERFACE

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 you what the button does.



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.

When multipage documents are processed, an additional toolbar, the **page toolbar**, is added below the image zone: it represents the various pages of the document and gives access to the page commands using the right-click (the "Context" menu).



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), multipage TIFF images, 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.



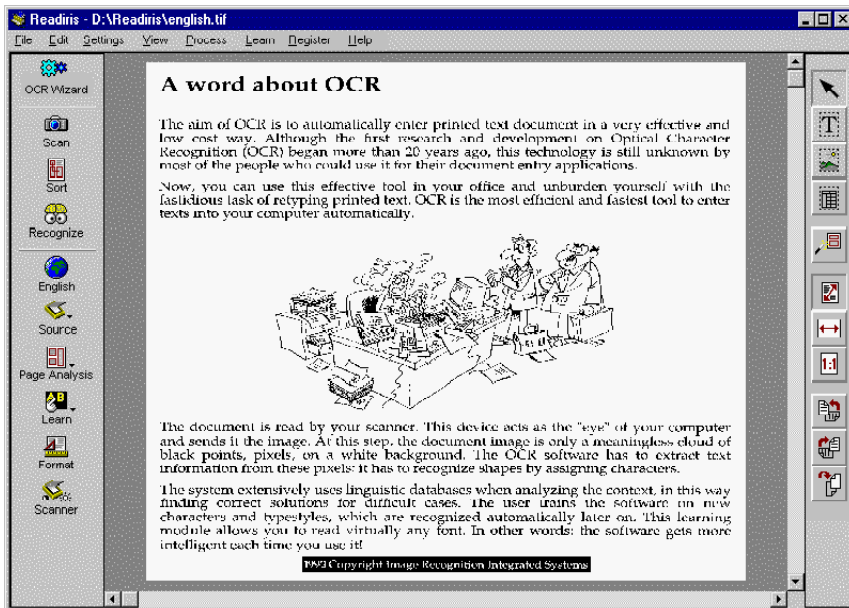
Next, click the "Open" button. (When you select the disk as image source, the "Scan" button is replaced by the "Open" button and the corresponding "Scan" command under the "Process" menu is replaced by the "Open" command.)



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.



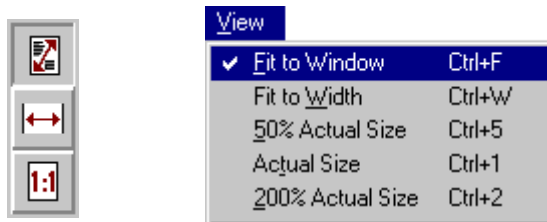
A third way of opening prescanned images is the use of “**drag and drop**”: drag an image from the Windows Explorer onto the Readiris image zone and it is opened promptly.

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.

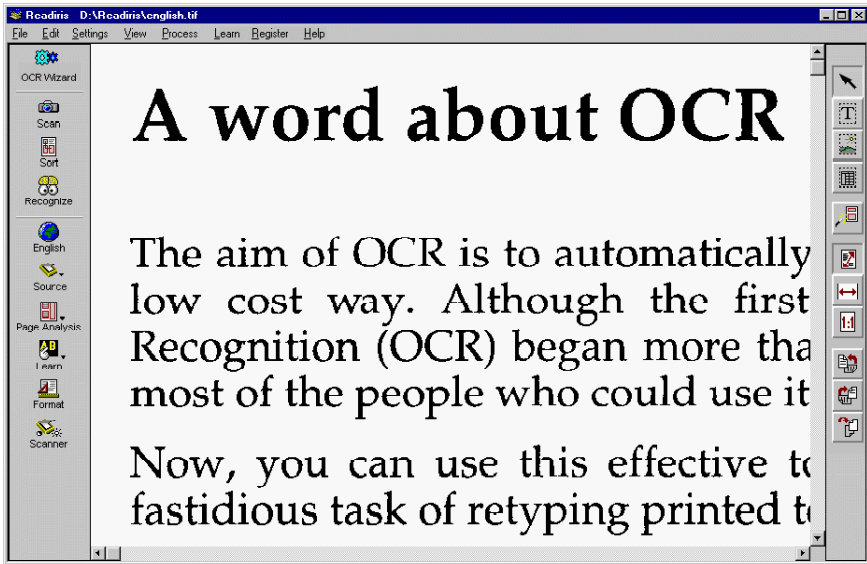
ZOOMING IN ON IMAGES

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!)



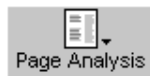
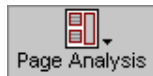
Finally, you can *right-click* the mouse button over a region of the scanned image to zoom in at real size immediately. Right-click a second time to zoom out again.



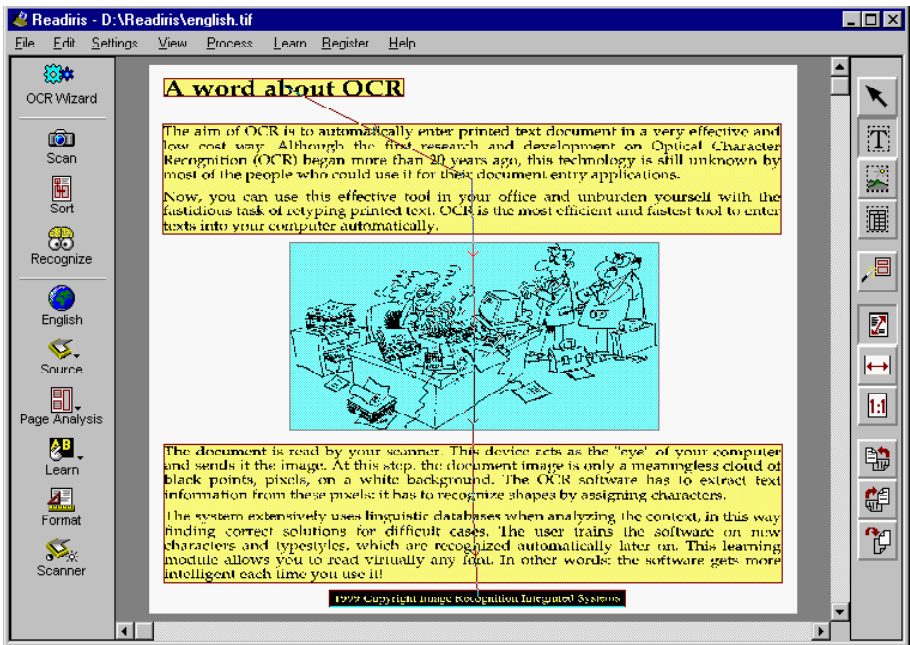
ONE, DECOMPOSING A SCANNED IMAGE

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.

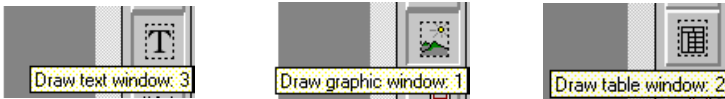


Page decomposition uses three **window types**: text, graphic and table windows. Readiris discriminates text blocks, tables and graphic zones containing photos, illustrations etc. on the page. (Saving graphics and recognizing tables will be discussed at great length below.)

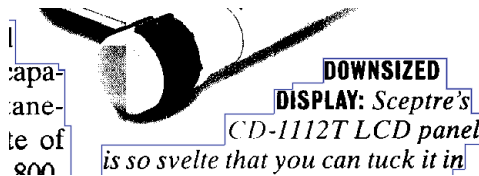
A **color code** indicates the window type: text zones are yellow, graphics are blue and tables are purple.



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



Page analysis 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

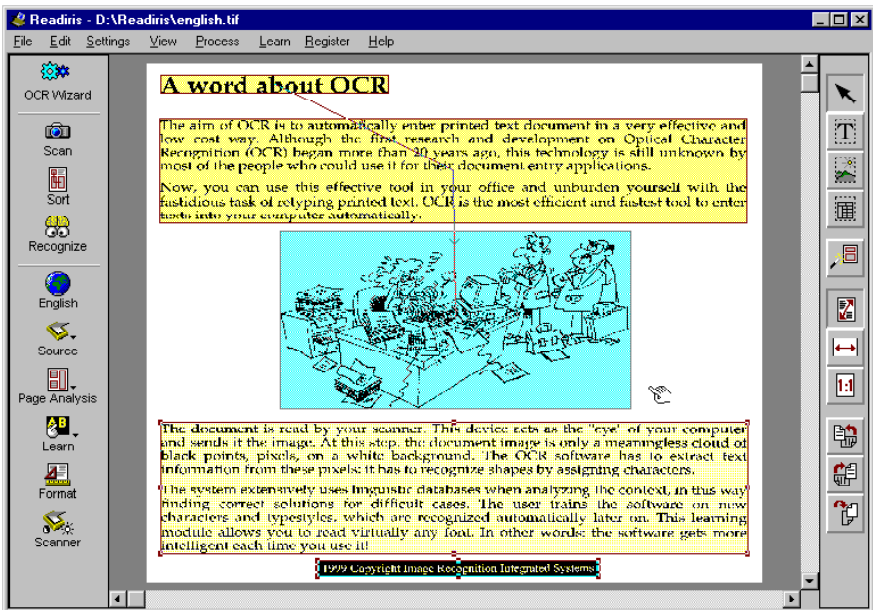
Readiris not only detects the various blocks, but also *sorts* them: the zones are sorted top-down, left to right by default to cope with columnized documents.

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.



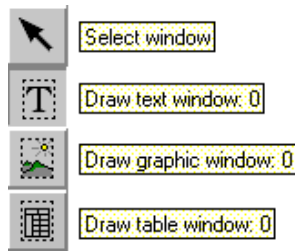
(Select the document language *before* executing the page analysis when you are dealing with Asian documents. Specific routines are used for these languages: the interline spacing of Asian documents is in most cases bigger than in Western



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

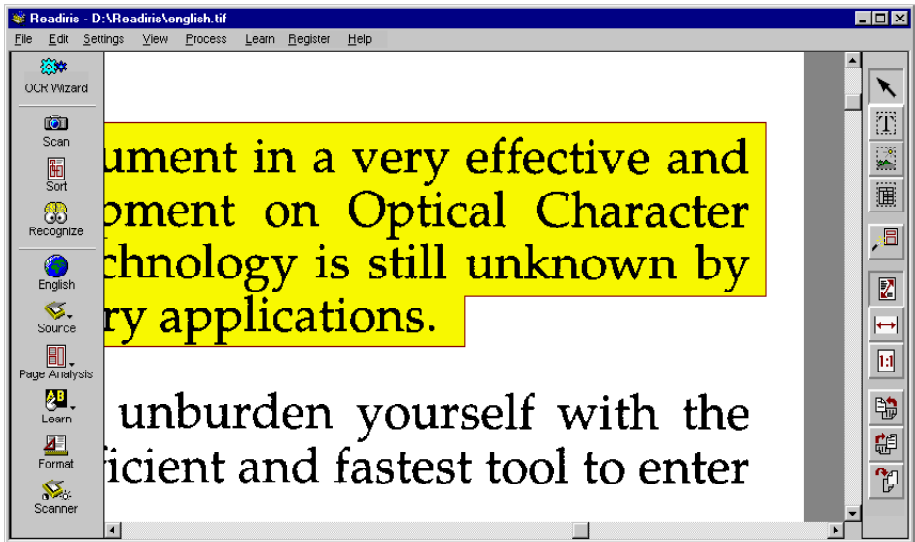
Page analysis is the automatic way of windowing a scanned page. Alternatively, you can zone an image manually with the **windowing tools** of Readiris.



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.)

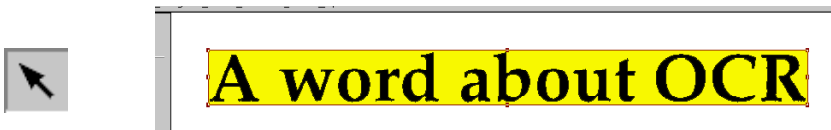
The windows are automatically sorted in the order of creation: arrows indicate the sort order.

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!

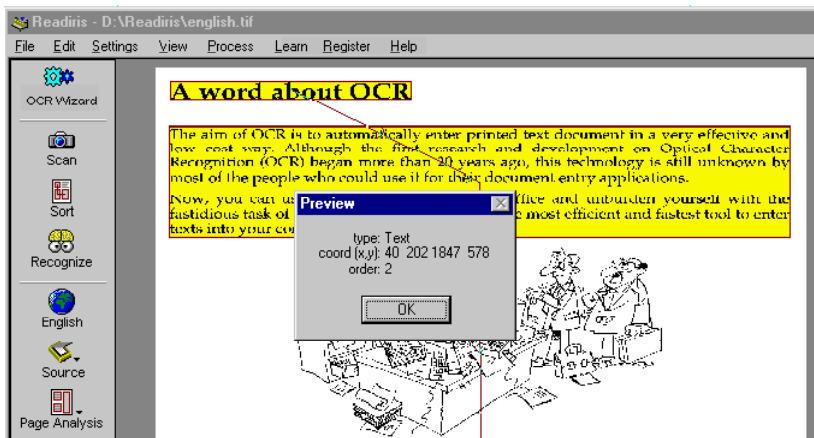
To modify, move and delete windows, you need to **select** them first. To do so, select the "Window Selection" or “arrow” tool in the image toolbar and click inside a window. Rectangular markers now appear at each corner and in the middle of the window sides.





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!



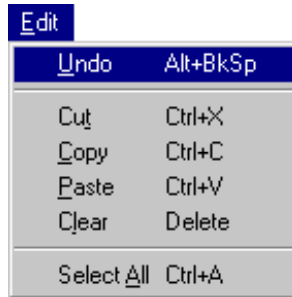
So much for selecting windows. To **modify** a window, select it, put your mouse cursor over a marker and drag the side to change the window size.

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

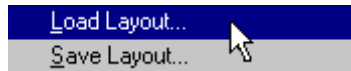
you have unfortunately deleted, moved, resized etc. some windows, "Undo" will cancel the last operation.



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.



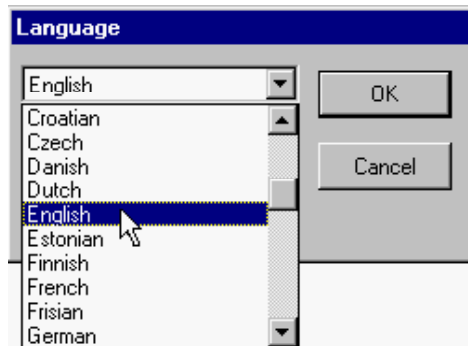
READIRIS TAKES YOU AROUND THE WORLD

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.



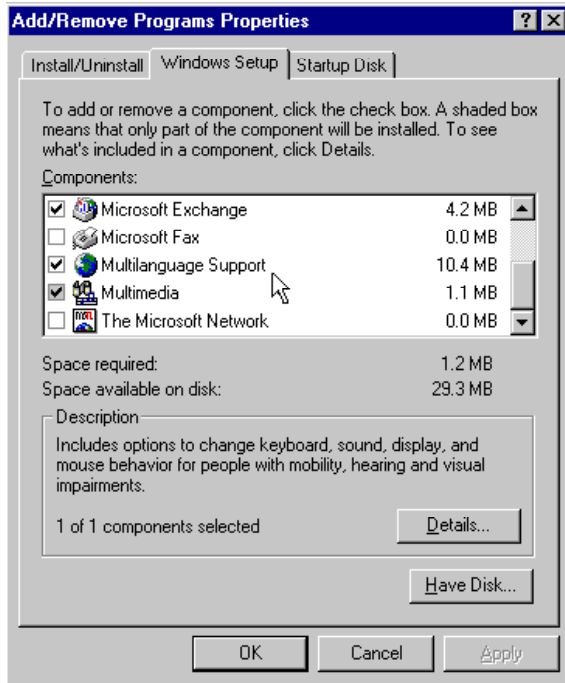
You can press a letter key to move to it directly: if English is currently selected, and you want to select Hungarian, you can click the "H" key on your keyboard to go directly to the Hungarian language. When several languages have the same initial, press the letter several times to go through the options. 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 detailed 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 'l' and '1'. 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.



193 1950s. 1hr
Well, Rossellini

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 untranscribable 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.

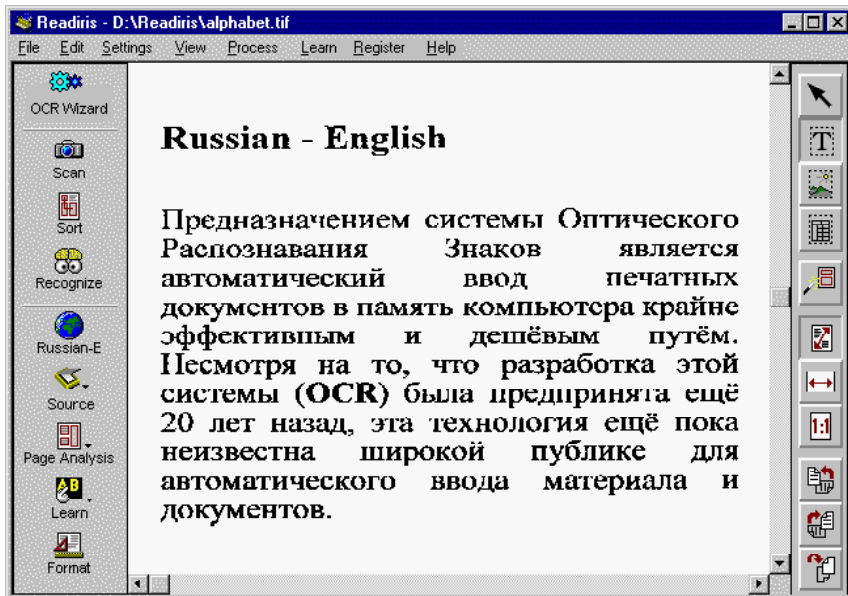
Be sure to select "Greek-English" or the appropriate Cyrillic language setting - for instance "Byelorussian-English". In other words: don't try to just select



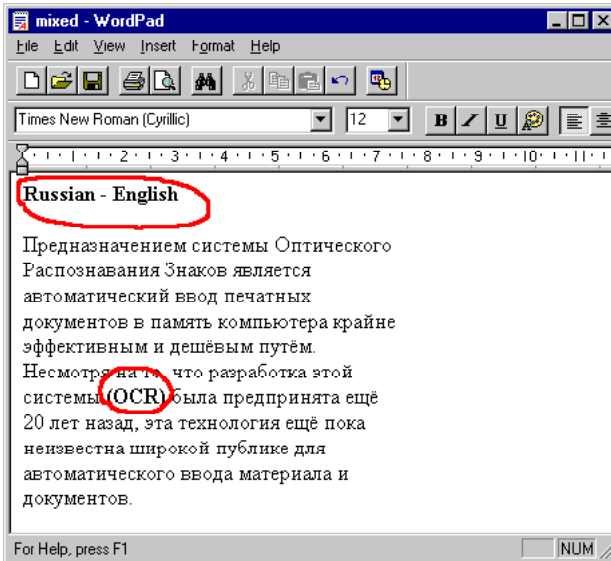
"Greek" or "Byelorussian" as document language and hope that the Western symbols will come out fine!



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.

ape-descended life

“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

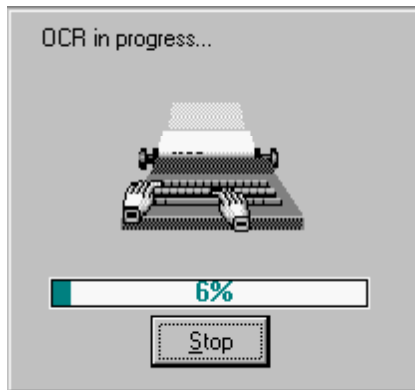
The simplest solution is to leave this option at all times on the default value "Auto", which means that Readiris will detect the character pitch automatically.

READIRIS GETS MORE INTELLIGENT EACH TIME!

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



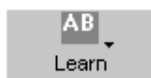
The OCR progress is indicated on-screen. You can click the "Stop" button to abort the text recognition.





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.

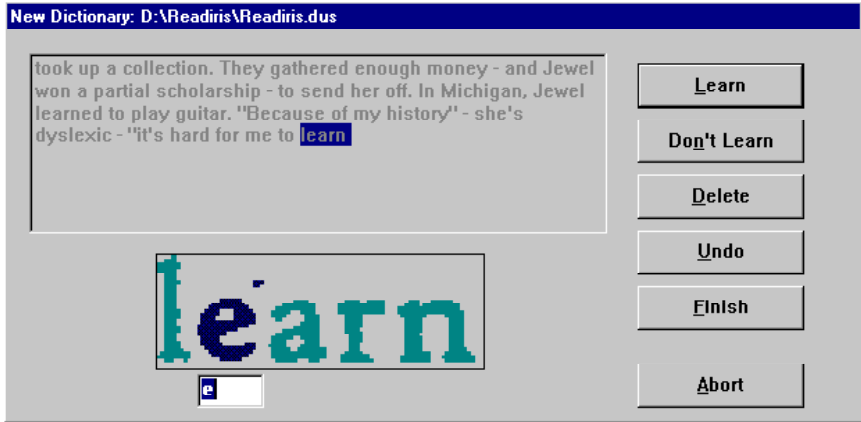
(Interactive learning does not apply to Asian documents: learning does not make sense for these languages which use thousands of different symbols - and you'd have to be able to enter the ideograms, not an easy task when using a Western keyboard!)



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.

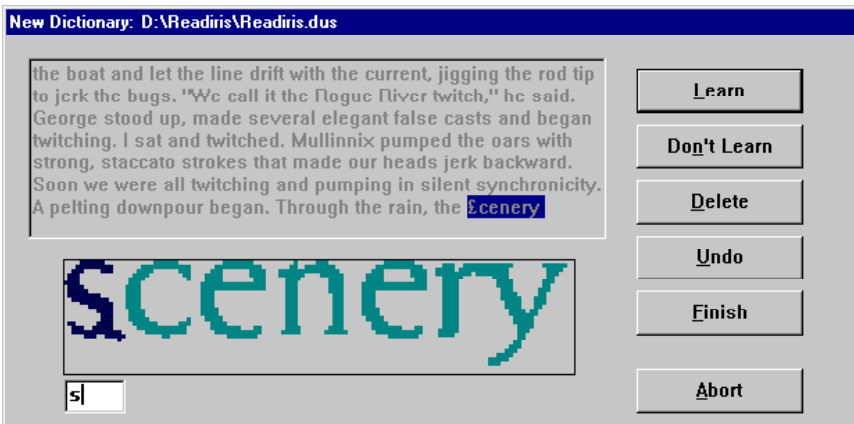
In the example above, the system stops on a soiled character, and we click "Learn" to accept a shape which cannot be confused with other characters.



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 de-faced "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 detailed proofreading.

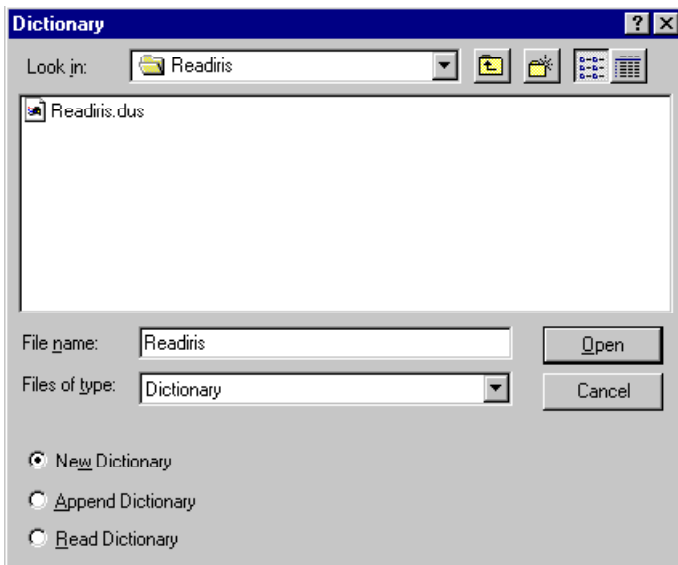
Don't confuse "Finish" with the "Abort" button: with "Abort", no output is generated and you start all over, with "Finish", the text is created, it just isn't proof-read in detail!

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.

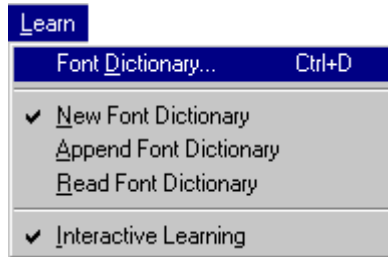
These font dictionaries should be loaded into memory when you want to recognize similar documents in order to make use of the extra intelligence they contain; in this way, Readiris takes into account the intelligence stored in these font libraries. You could say that Readiris gets more intelligence each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

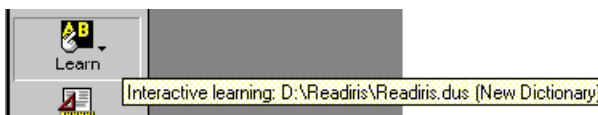
The append mode indicates that the training results will be saved in an *existing* dictionary: the recognition makes use of the extra intelligence already contained in the dictionary, and you add new font shapes to it. In simple terms, this option allows you to build up a font dictionary in several steps.

(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.

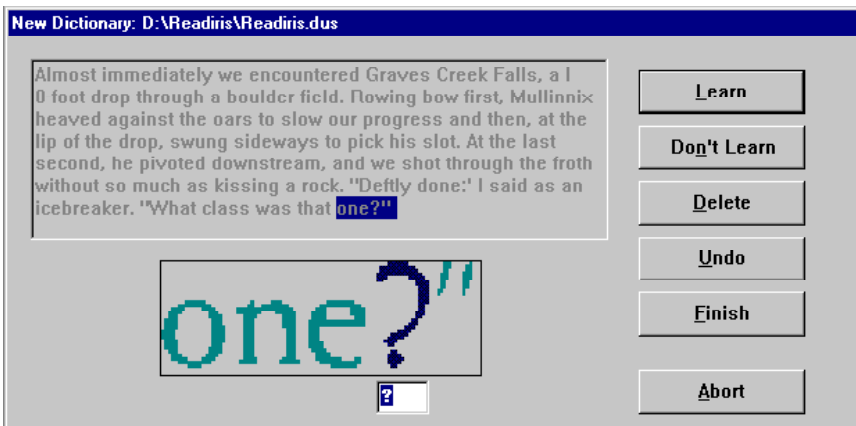
Select the new mode when a single page is recognized. To recognize many pages of the same type - pages with the same fonts and printing quality - select the new mode for the first page, the append mode for a few pages more and the read mode for the rest of the document(s). When multipage documents are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

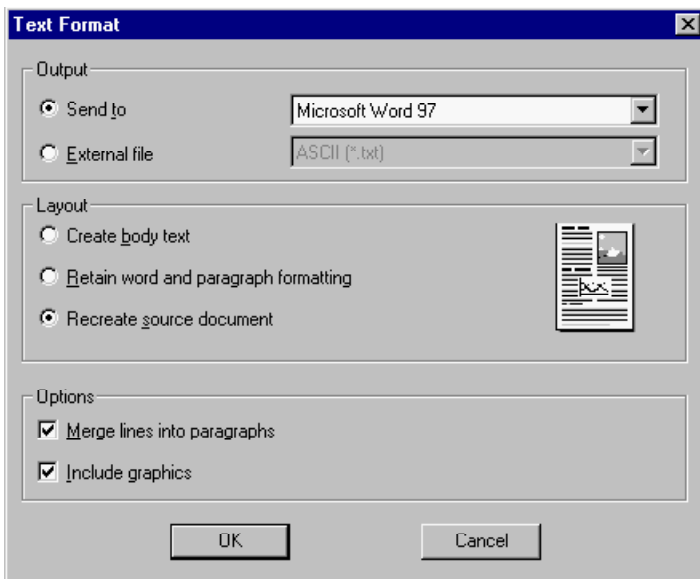
The scanned image is displayed again with the zoning as created to be available for further processing, it stays there until you scan another page.

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.

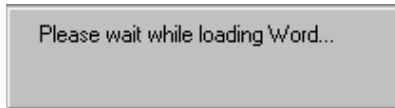
The **output target** is selected using the "Format" button on the main toolbar (or the command "Text Format" under the "Settings" menu).



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.



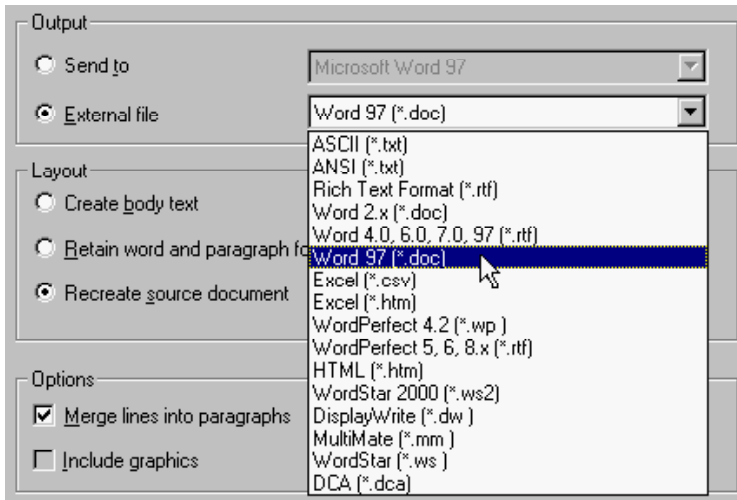
At the end of the recognition, the target application is started up and the recognized document is opened inside a new text file or worksheet.



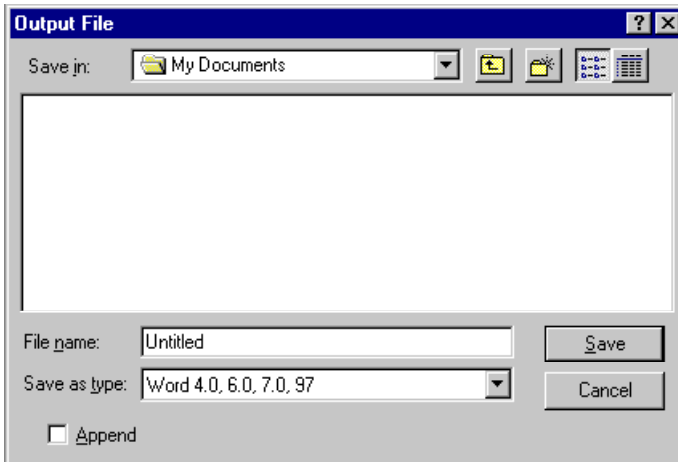
Don't forget that the option "Send to" also allows you to copy the recognized text to the Windows **clipboard**, so there is no strict need to export the result... or save it to an external file!

SAVING THE RESULTS IN A TEXT FILE

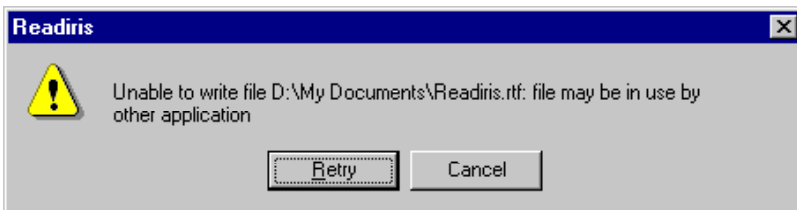
You can indeed write the OCR result to an "external" file. Readiris supports a wide range of file formats incorporating all popular wordprocessors and spreadsheets - Microsoft Word (DOC), RTF and HTML etc.



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

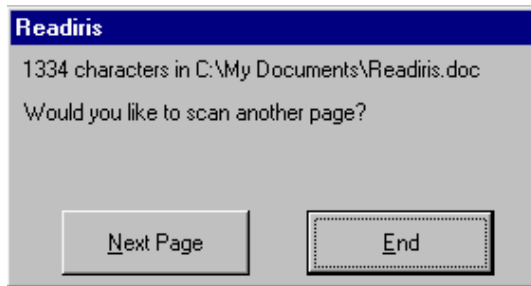


You can create a new file and append an existing text file - that's why you have an "Append" option. You could for instance add two scanned pages of text to a study which you wrote yourself. If you append an existing file, be sure it isn't currently open, because that will prevent you from writing to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

But there's a more efficient way of recognizing several pages than scanning and OCRing them one after the other: processing **multipage documents** directly!

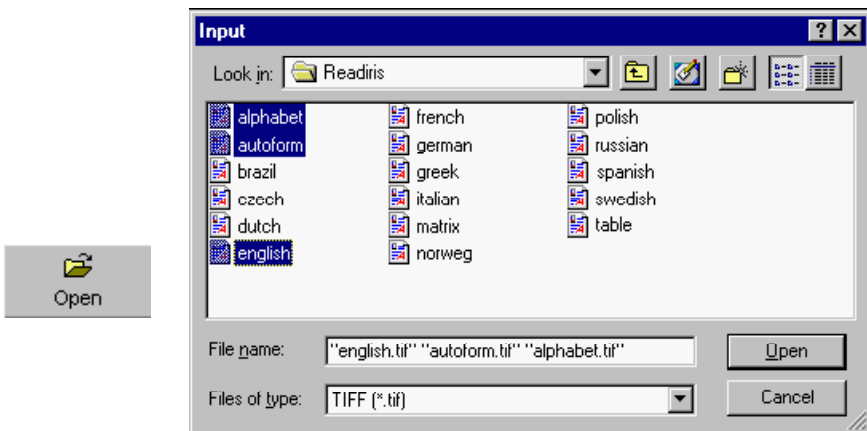


To scan a document composed of several pages in one operation, enable the document feeder of your scanner with the option "ADF" under the "Scanner" button.



Place the pages of your document in the automatic document feeder and start the scanning: all pages are scanned until the document feeder is empty.

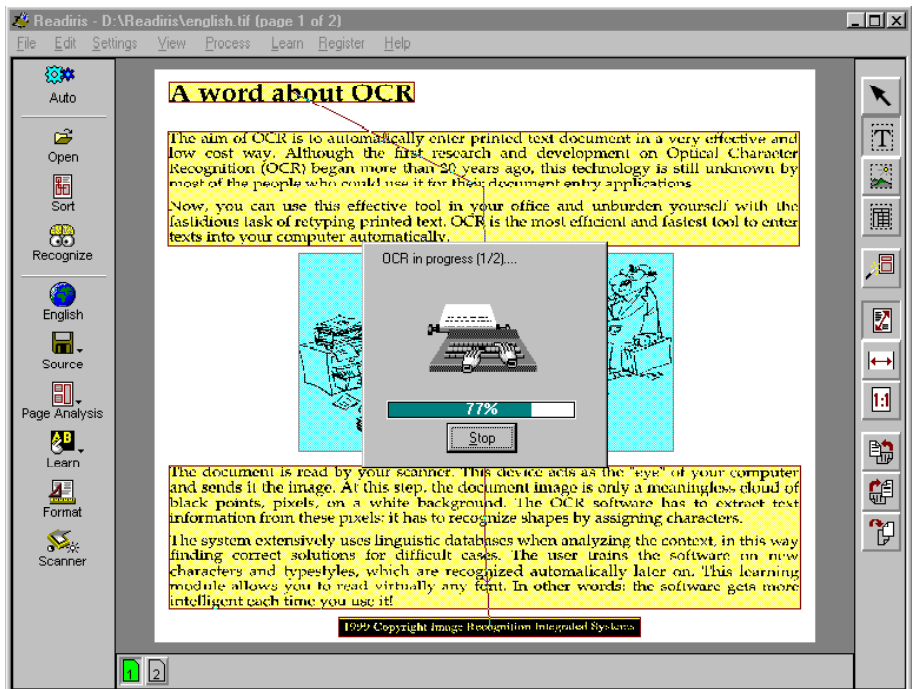
You can also *open* multiple prescanned images. To load several images, select the first image and hold down the Ctrl key as you select additional images. To load a continuous range of images, select the first image and hold down the Shift key as you select the last image.



You can even drag several prescanned images from the Windows Explorer onto the Readiris window!

As soon as a multipage document is loaded into memory, an additional toolbar, the **page toolbar**, is added below the image: it represents the various pages of the document and gives access to the page commands (using the right-click). The current page is highlighted in the page toolbar and mentioned in the Readiris title bar.

When you start the recognition, the various pages are displayed one after the other; the Readiris title bar and the OCR progress bar indicate the page number.





If the interactive learning is enabled, you go through the recognition and learning phases page by page. The dictionary mode "New" is used for the first page and the mode "Append" for the successive pages.

(When you click the "Finish" button, all decisions by the system thereafter are accepted without user validation. In other words, the interactive learning is aborted for *all* pages; the OCR for this document continues in automatic mode.)

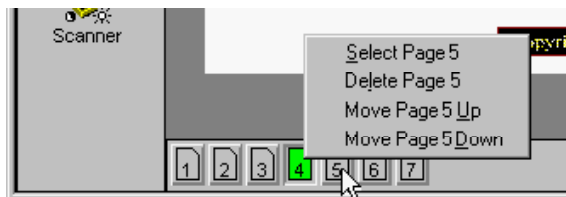
The recognition result of multipage documents is saved in a single output file. When the recognition result is sent to a target application, multiple pages get created inside a single document.

EDITING MULTIPAGE DOCUMENTS

The user can edit multipage documents, mainly to correct scanning errors: he can delete pages from the document and move pages to other locations in the document.

The navigation first. To *go to a page*, click on its icon in the page toolbar or hold your cursor over its icon, invoke the "Context" menu by right-clicking and use the command "Select Page".

Let's edit the document now. To *delete a page* from the document, hold your cursor over its icon, right-click it and use the command "Delete Page". To *move a page up* in the document, use the command "Move Page Up", and to *move a page down*, use the command "Move Page Up".



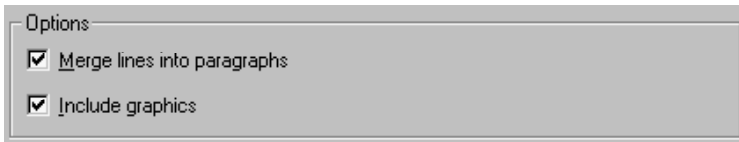
Note above all that the commands from "Context" menu apply to the page under your mouse cursor, *not* to the selected, highlighted page!

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

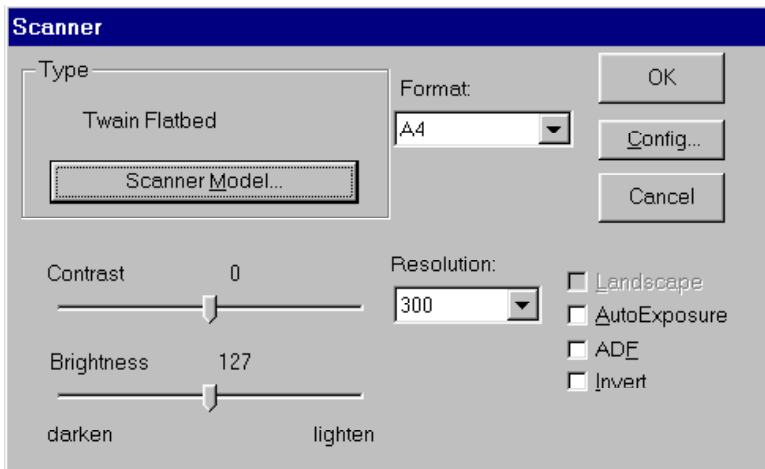
Let's set our scanner up now. It is assumed that the scanner hardware and necessary drivers are installed correctly.

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.



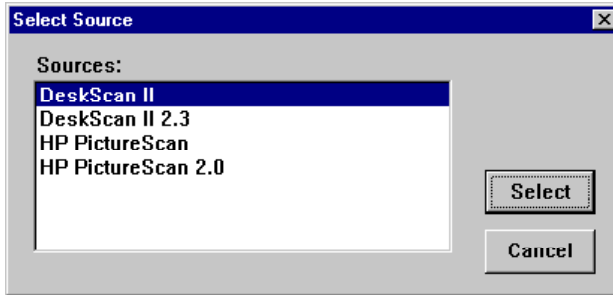
Click the button "Scanner Model" to determine your **scanner model**.



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).



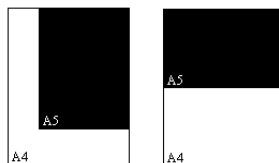
6 point

72 point

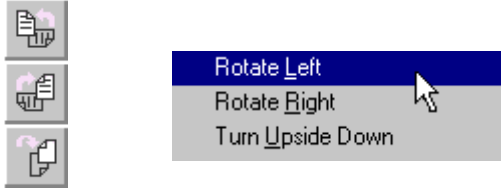
Readiris also recognizes “**drop letters**”, large caps that cover several lines. (These can of course be no bigger than 72 point!)

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.



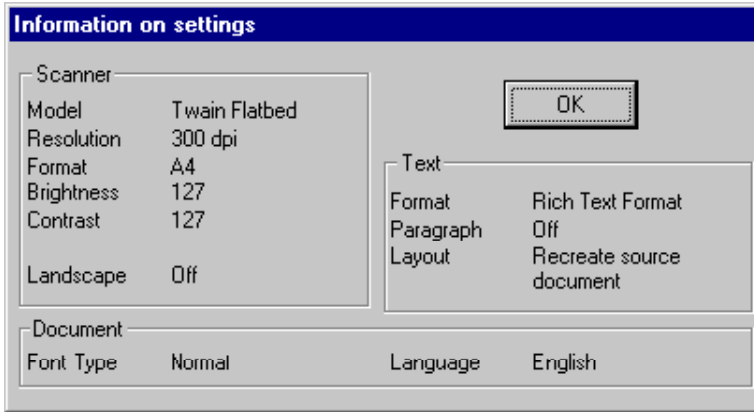
SAVING SPECIFIC SETTINGS

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).

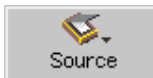
RECOGNIZING PAGES AUTOMATICALLY

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.



Readiris - D:\Readiris\autoform.tif

File Edit Settings View Process Learn Register Help

OCR Wizard

Scan

Sort

Recognize

English

Source

Page Analysis

Learn

Format

Scanner

Autoformatting

The aim of "autoformatting" is to recreate a facsimile copy of the original document.

The OCR process does more than just recognize your text; it can format it for you too!

In a way, text recognition is becoming more and more page recognition or document recognition...

Whether Readiris reformats the recognized text or not is up to the user. You can perform OCR because you just need the text, in which case you will edit and format it yourself, and you can also do the source document, including its formatting.

The various levels of formatting are: creating body text, creating the word and paragraph blocks and creating a facsimile copy.

Creating body text means no formatting is applied: you get a continuous, running flow. All formatting is done afterwards by the user.

If you retain the word and paragraph formatting, the font type, size and typestyle are maintained across the recognition; the number of paragraphs is also detected. However, no tables are captured and the columns aren't recreated; the paragraph flow follows the original.

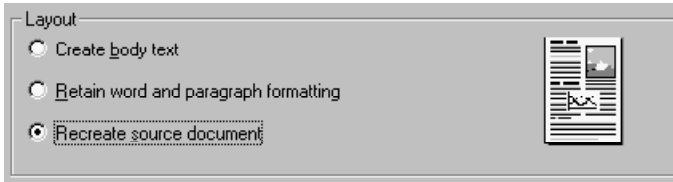
"Autoformatting" recreates a facsimile copy of the original document: the text blocks, graphics and tables are recreated in the same place and the word and paragraph formatting are maintained across the recognition.

Cell 1A	...	Income
Cell 2A	...	Warden
Cell 3A	...	\$199,000

As a result, you get a true copy of your source document, be it a company and editable text file, no longer a scanned image of your document.

OCR Wizard - File Edit Settings View Process Learn Register Help

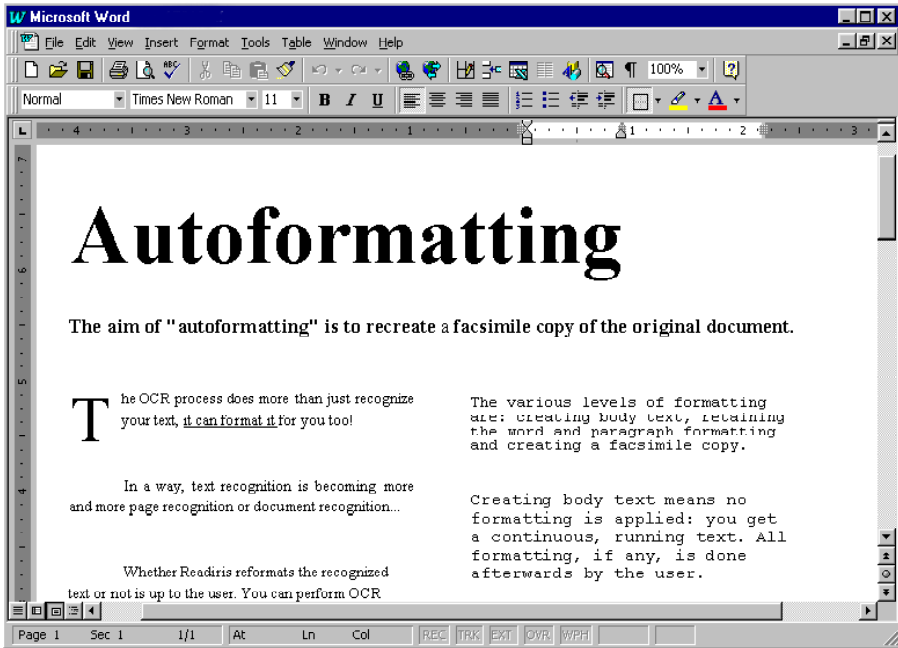
Click the "Format" button on the main toolbar and choose to send the OCR result to Microsoft Word or select the RTF (Rich Text Format) or Word (DOC) format. Secondly, select "Recreate Source Document" as layout option. (The option "Merge Lines into Paragraphs" is enabled by default to apply wordwrap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



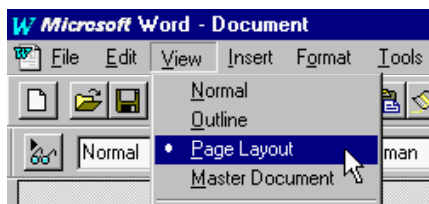
Note that layout reconstruction is limited to the Word (DOC) and RTF format, and to documents sent directly to Microsoft Word 97. On the plus side, the Word (DOC) and RTF formats are widely used text formats that can be opened by any popular wordprocessor.

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!

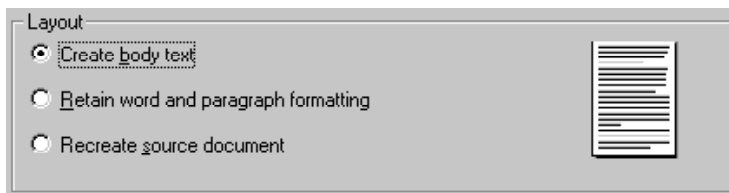


In short, Readiris not only recognizes your texts, but can format them for you as well. OCR isn't just text recognition anymore, it is becoming more and more **page** or document **recognition** as well!

TEXT FORMATTING, PART 2

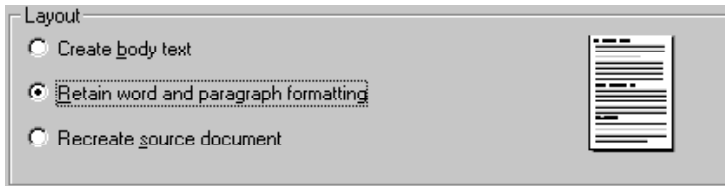
The other layout options are "Create Body Text" and "Retain Word and Paragraph Formatting".

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.)

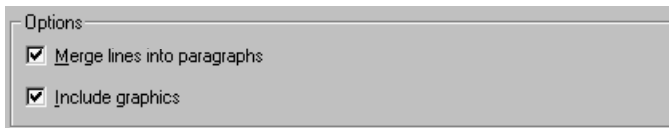
The option "Retain Word and Paragraph Formatting" represents the middle road: the **word formatting** - font type (serif - sans serif, proportional - fixed, normal - condensed), point size and tpestyle (bold, italic and underlined) - is retained across the recognition, and so is the **paragraph formatting**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

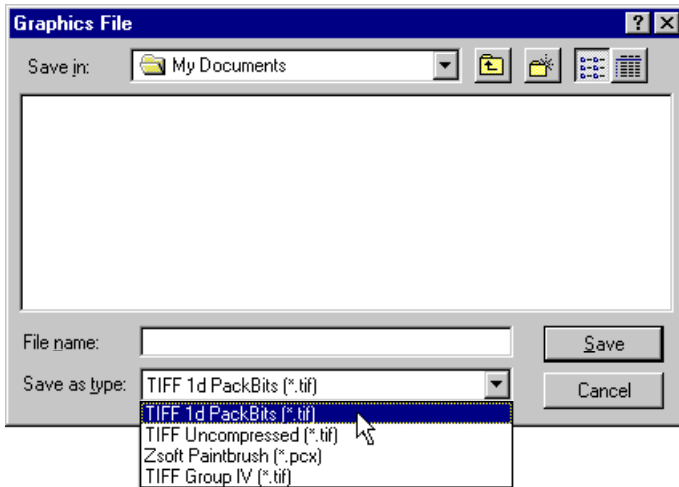


(Similar to the other window types, the tooltip of the graphic window tool tells you how many graphic windows there are. And you can press the Alt key while you select a window to display its type and its coordinates.)

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



You are prompted to specify a filename.



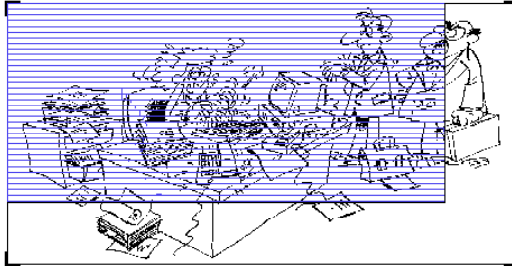
Determine which graphic file format you will use. Select a format that's supported by your paint or photo retouching software. The TIFF and Paintbrush (PCX) formats are available. (Paintbrush files can always be opened with the Windows accessory Paint.)



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.

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



...ent 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), multipage TIFF images, 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.

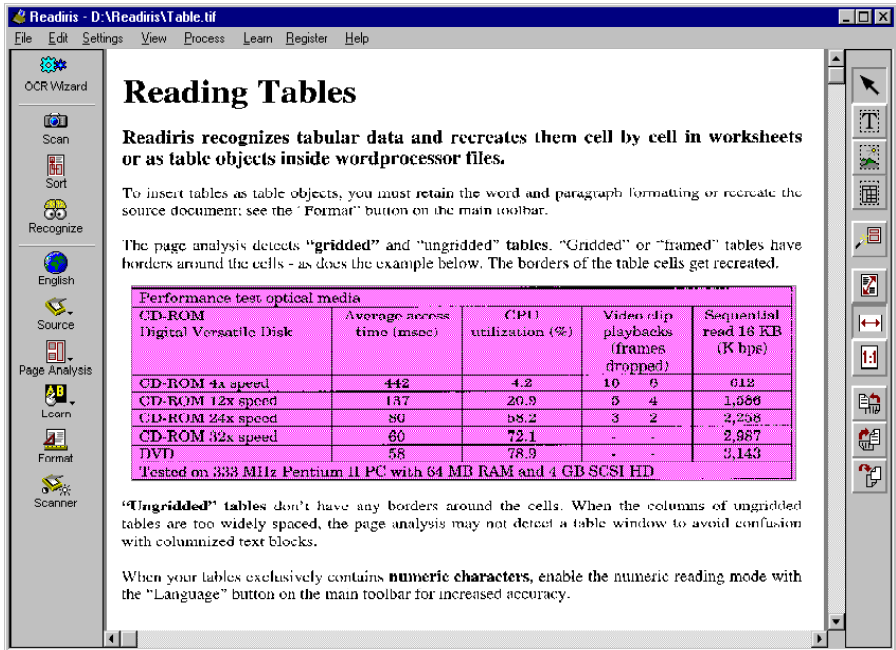
Don't forget that you can use “**drag and drop**” to open images: drop image files from the Windows Explorer onto the image zone of Readiris and they are promptly opened!

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.)



Microsoft Word - table

File Edit View Insert Format Tools Table Window Help

Normal Times New Roman 11 B I U

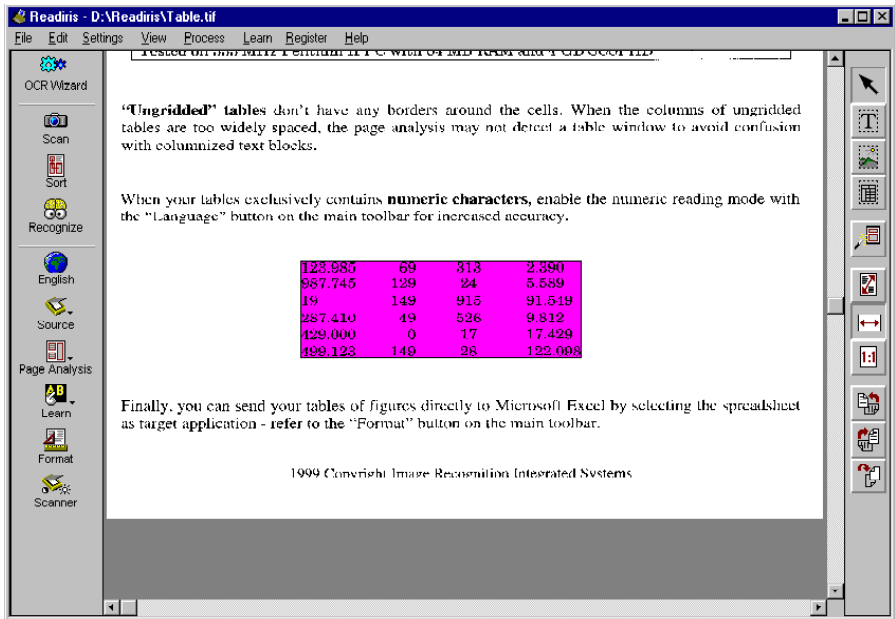
Tip of the Day: To hyphenate a document as you type, click Hyphenation on the Tools menu.

3/4 pt Clear

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				

Page 1 Sec 1 1/1 At 8.5cm Ln 13 Col 1 REC MARK EXT DVR WPH

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

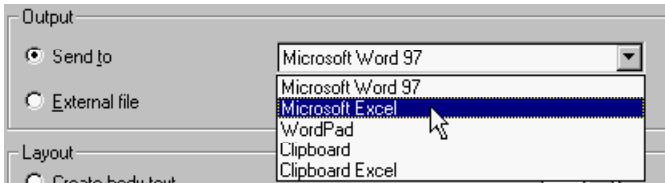


For optimal OCR accuracy, you should limit recognition to the **numeric symbols** with the "Language" button. (The numeric mode is not strictly numeric, it includes the symbols 0 to 9, +, *, /, %, , (comma), . (dot), (), -, =, \$ and £.)



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.

	A	B	C	D	E
1	123.985	69	313	2.390	
2	987.745	129	24	5.589	
3	19	149	915	91.549	
4	287.410	49	526	9.812	
5	429.000	0	17	17.429	
6	499.123	149	28	122.098	
7					

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.

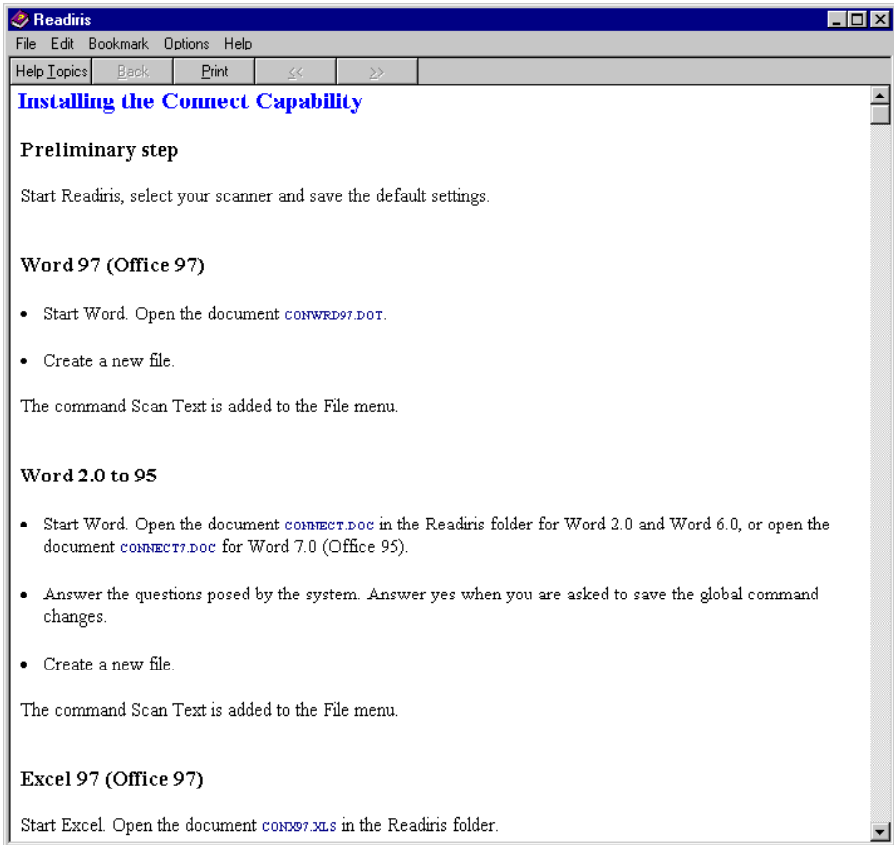


THE “CONNECT” FEATURE, ANOTHER DIRECT LINK

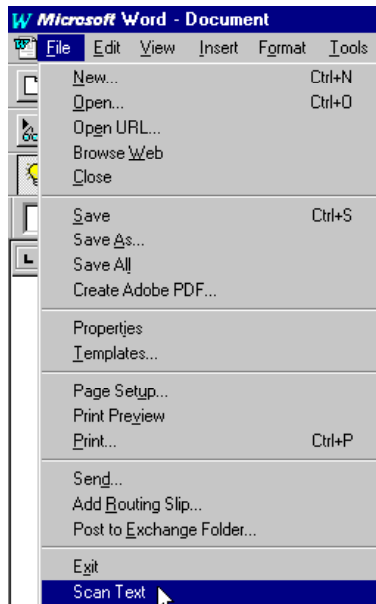
Actually, there's yet another way of recognizing tables of figures: you can do it from within your spreadsheet!

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.



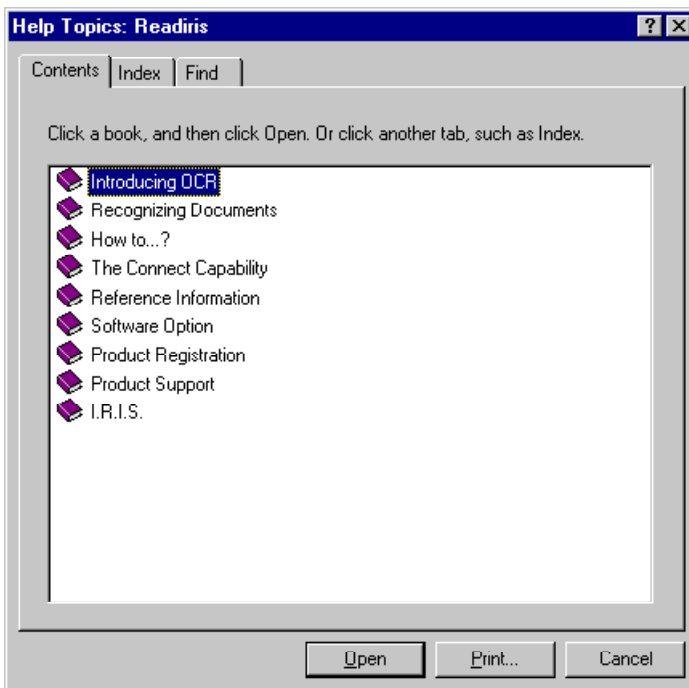
Here's how it works: Readiris may *not* run in the background when you launch the "Connect" macro. Click on the new command in your application menu to run Readiris. The "Connect" interface may ask you some questions before Readiris will start running. Proceed as usual and quit the "Connect" interface 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.



Chapter 3

COMMAND REFERENCE

This chapter provides an extensive reference guide to the Readiris commands. Note that buttons and shortcuts are available for all frequently used functions!

MAIN TOOLBAR

The main toolbar provides immediate access to the frequently used general commands. Tooltips are available for all buttons.



OCR Wizard button

Starts the OCR wizard.

The OCR wizard is a semi-automatic way of recognizing pages. It guides the user through the OCR process comfortably: he answers a few simple questions to obtain quick and easy results with Readiris.



The OCR wizard starts running each time Readiris is started up; this can be avoided by disabling the option "Enable Wizard on Startup" in the first screen of the wizard. (Whether the OCR wizard is run at the program startup or not is stored in the default settings.)

Related Commands

The option "Enable Wizard on Toolbar" under the "Settings" menu "installs" the OCR wizard on the main toolbar: when this option is enabled, the "OCR Wizard" button is placed on the toolbar, when it is disabled, the "Auto" button that triggers automatic recognition is placed on the toolbar.

The option "Enable Wizard on Startup" under the "Settings" menu sees to it that the OCR wizard starts running each time Readiris is started up. The option "Enable Wizard on Startup" in the first screen of the wizard has the same effect. This option is enabled by default.



Auto button

Executes automatic recognition.

The user intervention is limited to a minimum: he initiates the scanning process and saves the recognition result.

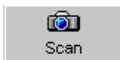
Depending on the image source selected with the "Source" or "Scanner" button on the main toolbar, the scanner scans a page automatically or the user is prompted to open an image file. To zone the document, page analysis is executed on the scanned image or the active windowing layout as loaded into memory with the command "Open Layout" under the "File" menu is applied. Next, the character recognition is executed without interactive learning and the user is invited to save the text result or the text result is placed on the clipboard.

Related Commands

The successive use of the buttons "Scan" (or "Open"), "Sort" and "Recognize" on the main toolbar executes step-by-step text recognition. The "Source" and "Scanner" button on the main toolbar determine whether the scanner or prescanned images function as image source.

The "Auto" button is equivalent to the command "Automatic OCR" under the "Process" menu.

The option "Enable Wizard on Toolbar" under the "Settings" menu "installs" the automatic mode on the main toolbar: when this option is disabled, the "Auto" button is placed on the toolbar, when it is enabled, the "OCR Wizard" button that guides the user through the OCR process is placed on the toolbar.



Scan button

Scans a document.

The scanned images appear in the image zone progressively.

To scan multipage documents efficiently, the user enables the document feeder of his scanner with the option "ADF" under the "Scanner" button on the main toolbar and starts the scanning. All pages are scanned until the document feeder



is empty. (As soon as multipage documents are loaded into memory, the page toolbar is added below the image zone.)

This button alternates with the "Open" button. It is available exclusively when the scanner option is selected as image source with the "Source" button on the main toolbar and when the option "<Image>" is *not* selected as "scanner" with the "Scanner" button on the main toolbar.

Related Commands

The "Scanner" button on the main toolbar determines all scanning parameters such as resolution, page format, brightness and contrast etc.

The rotation buttons on the image toolbar allow the user to rotate images with an incorrect orientation.

The button "Auto" on the main toolbar executes scanning, page analysis and recognition simultaneously.

The "Scan" button is equivalent to the "Acquire" command under the "File" menu and the "Scan" command under the "Process" menu.



Open button

Opens an image file.

The user is prompted to open prescanned image files, the scanned images appear in the image zone progressively.

Readiris supports black-and-white TIFF images (uncompressed, packbits, Group 3 and Group 4 compressed), Paintbrush (PCX) images and Windows bitmaps (BMP). Multipage TIFF files are also supported.

Opening prescanned images is particularly useful to convert faxes into editable text files. Should the user have any influence over his correspondents, he can ask them to send faxes with the "fine" quality - those faxes have the higher resolution of 200 dpi and will yield better OCR results.

The user can open multiple images by loading multipage (TIFF) files and by loading several prescanned images. To load several images, he selects the first image and holds down the Ctrl key as he selects additional images. To load a

continuous range of images, he selects the first image and holds down the Shift key as he selects the last image. (As soon as multipage documents are loaded into memory, the page toolbar is added below the image zone.)

The user can also use “drag and drop” to open prescanned images. When image files are dragged from the Windows Explorer onto the Readiris image zone, they are opened promptly.

This button alternates with the "Scan" button. It is available exclusively when the disk option is selected as image source with the "Source" button on the main toolbar or when the option "<Image>" is selected as “scanner” with the "Scanner" button on the main toolbar.

Related Commands

The rotation buttons on the image toolbar allow the user to rotate images with an incorrect orientation.

The button "Auto" on the main toolbar executes scanning, page analysis and recognition simultaneously.

The command "Save Full Page as Image" under the "File" menu allows to save entire scanned pages in image files which can be opened and recognized later on.

The "Open" button is equivalent to the "Open" command under the "File" menu and the "Open" command under the "Process" menu.



Sort button

Allows to modify the sort order of the text windows.

Sorting is very useful to edit the results of the page analysis.

The mouse cursor shows that the “sort mode” is enabled: the mouse cursor changes to a hand with a pointing finger and the color of the windows becomes softer, weaker. (With white-on-black text blocks, the difference is less noticeable.)



The user clicks inside the windows to define their sequence: for selected windows, the “full” color is restored. The windows the user doesn't click on won't be recognized. Arrows indicate the sort order.

Sorting can be combined with manual windowing: the user applies page analysis to detect the windows and sorts the ones he want to include. As soon as he starts drawing a window manually, all windows that were not selected up to that point are simply erased.

Sorting applies only *partially* when “autoformatting” is used - this involves the enabling of the Word (DOC) or RTF file format or sending the OCR result directly to Microsoft Word, and the layout option "Recreate Source Document" with the "Format" button on the main toolbar. The user can include and exclude specific zones, but any re-ordering of zones is simply ignored. “Autoformatting” recreates a facsimile copy of the original document and therefore implies that the placement of columns, text blocks, graphics and tables is true to the source document.

Related Commands

The "Page Analysis" button on the main toolbar enables the automatic page analysis, the "Analyze Page" button on the image toolbar forces the system to (re-)execute page decomposition.

The button "Auto" on the main toolbar executes scanning, page analysis and recognition simultaneously.

The "Sort" button is equivalent to the "Sort" command under the "Process" menu.



Recognize button

Executes character recognition.

The image file is converted into editable text.

When “autoformatting” is used, Readiris allows to archive a true copy of the user's documents, be it a editable and compact text file instead of a scanned image.

The tooltip of the "Recognize" button indicates the font type: when no message is added to the tooltip, the "normal" font quality applies, when the message "Dot Matrix" is added, the dot matrix reading mode is enabled.

Related Commands

The button "Auto" on the main toolbar executes scanning, page analysis and recognition simultaneously.

The command "Font Type" under the "Settings" menu determines whether the "normal" or dot matrix reading mode applies.

The "Recognize" button is equivalent to the command "Recognize" under the "Process" menu.



Language button

Determines the document language.

Indicating the language of the document to be recognized is imperative, as the set of recognized characters varies according to the selected language. Secondly, recognition is assisted by linguistic databases: Readiris extensively uses linguistic information to validate good solutions and mark suspicious ones.

Readiris recognizes all American and European languages, including the Central-European languages, Greek, Turkish, the Cyrillic ("Russian") and Baltic languages. Multi-linguistic support ensures that "exotic" characters such as ç, ß, ñ, γ and ø are recognized correctly.

Optionally, the user 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.)

It takes the appropriate Windows configuration to display Central-European, Greek, Turkish, Cyrillic and Baltic characters. The user may have to install the Windows "service pack" "Multilanguage Support" before his Windows system is able to cope with these languages. Depending on the software package, the



Readiris CD-ROM may contain detailed information on how to install this Windows module.

To view and edit Asian documents, the user 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.

The user can press a letter key to move to it directly: if English is currently selected, and he wants to select Hungarian, he can click the "H" key on his keyboard to go to the Hungarian language directly. When several languages have the same initial, he simply presses that letter several times to go through the options. An example: by pressing "P" once, the user selects Polish, by pressing "P" a second time, he selects Portuguese, and by pressing "P" a third time, he's back on Polish. To go to *another* letter, say T, the user presses BackSpace before he enters the "T" character.

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

When the user selects Greek-English, a mixed Cyrillic language setting - for instance "Byelorussian-English" instead of just "Byelorussian" -, Japanese or Simplified Chinese, a mixed character set is used. Readiris copes beautifully with “Western” words (proper names, brand names etc.) as occur in Greek, Cyrillic and Asian documents.

To mix other languages on a page, the user selects the language with the most extended character set. To read documents where English and French occur alongside, French is selected as language to ensure that the accentuated characters such as ç, é and ù are recognized correctly.

To optimally recognize tables of figures, the recognition can be limited to a numeric character set. The symbols 0 to 9, +, *, /, %, , (comma), . (dot), (,), -, =, \$ and £ will then be recognized. This option should not be selected when the tables contain alphabetic text.

Related Commands

The language selection can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The "Language" button is equivalent to the "Language" command under the "Settings" menu.



Source button

Determines the image source.

The user can capture images using a scanner, or open prescanned images to execute deferred OCR. The latter procedure is useful to recognize faxes.

Alternatively, the user can select the option "<Image>" as his "scanner" with the button "Scanner" on the main toolbar to use prescanned images as image source. The scanner option is then no longer available.

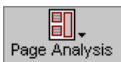
Selecting the scanner as image source puts the "Scan" button on the main toolbar (and enables the command "Scan" under the "Process" menu), selecting prescanned images as image source puts the "Open" button on the main toolbar (and enables the command "Open" under the "Process" menu).

The scanner is the default image source.

Related Commands

The "Scan" button on the main toolbar scans a document, the "Open" button on the main toolbar opens an image file.

The source selection can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.



Page Analysis button

Enables the automatic page analysis.

The user avoids windowing the zones manually as Readiris decomposes the page automatically. Page analysis is particularly useful when columnized texts



and documents with a complex page layout - possibly including graphics and tables - are OCRed.

Page decomposition uses three window types: it discriminates the text blocks from the tables and graphic zones containing photos, illustrations etc. on the page. A color code indicates the window type: text windows are yellow, graphics are blue and table windows are purple.

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

Readiris detects “gridded” and “non-gridded” tables: “gridded” or “framed” tables have borders around the cells, “non-gridded” tables are not surrounded by cell borders. When the space between the columns of “non-gridded” tables is too big, Readiris may avoid windowing it as a table to avoid confusion with text columns.

The windows are sorted top-down, left to right to account for columnized documents. Arrows indicate the sort order. The user can change the sort order of windows with the "Sort" button on the main toolbar and combine window sorting with manual zoning.

When “autoformatting” is applied, sorting only *partially* applies: the user can include and exclude specific zones, but any re-ordering of zones is simply ignored. “Autoformatting” recreates a facsimile copy of the original document, which implies that the placement of columns, text blocks, graphics and tables is true to the source document.

The user should select the document language *before* executing the page analysis when he is 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.

Page analysis is automatically disabled when a windowing template is loaded into memory with the command "Load Layout" under the "File" menu. (The zon-

ing layout remains active until page analysis is re-enabled with the "Page Analysis" button on the main toolbar.)

Related Commands

The command "Analyze Page" on the image toolbar makes Readiris (re-)execute page analysis, the "Sort" button on the main toolbar resorts the text windows.

The page analysis can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The "Page Analysis" button is equivalent to the option "Page Analysis" under the "Settings" menu.



Learn button

Enables the learning phase, where Readiris acquires new font information.

Font training can substantially enhance the accuracy of the recognition system. When the user tries to read distorted, defaced forms as can be 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. Readiris can for instance 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 "☎"!)

Learning can be disabled when the recognition rate is excellent and the text result requires no detailed proofreading.

Learning is enabled by default. Learning is always disabled with automatic OCR and when Asian documents are read: learning does not make sense for these languages which use thousands of different symbols - assuming that the user is able to enter the ideograms, not an easy task when using a Western keyboard.



The button's tooltip indicates the font dictionary and its mode: the user can hold the mouse cursor over the "Learn" button to learn which user dictionary and dictionary mode are enabled.

Related Commands

The command "Font Dictionary" under the "Learn" menu selects or defines a font dictionary and its mode, the options "New Dictionary", "Append Dictionary" and "Read Dictionary" under the "Learn" menu also set the dictionary mode.

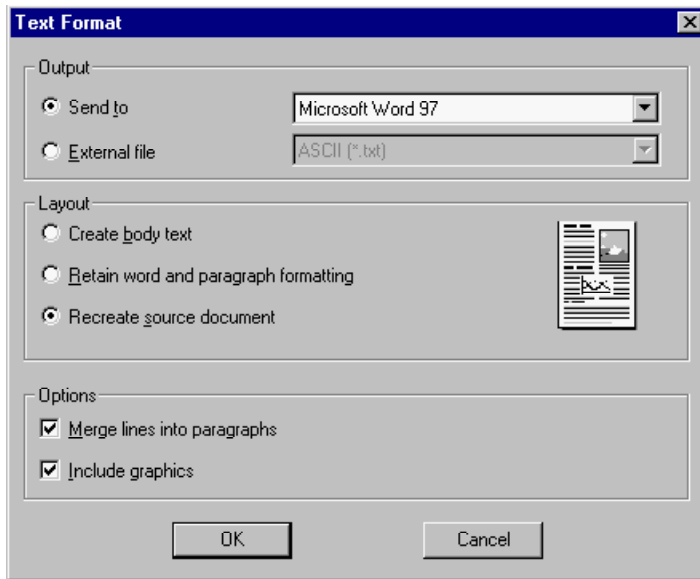
Interactive learning can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The "Learn" button is equivalent to the option "Interactive Learning" under the "Learn" menu.



Format button

Determines the text file format and the degree of formatting of the recognition result.



The user can select a document format supported by his text applications, copy the output to the Windows clipboard and output the OCR result directly to his wordprocessor and spreadsheet.

Readiris can export the recognized document automatically to the wordprocessor Microsoft Word 97, the spreadsheet Microsoft Excel and the Windows accessory WordPad. If necessary, Readiris will start up the target application. When "autoformatting" is applied, Readiris will enable the "page layout" view of Microsoft Word 97 to give a "WYSIWIG" view of the reading result.

The recognition result of multipage documents is saved in a single output file. When the recognition result is sent to a target application, various pages get created inside a single document.



This command also determines the level of formatting given to the text output. The availability of formatting options depends on the selected file format: layout reconstruction is limited to documents sent to Microsoft Word and to the Word (DOC) and RTF format. Microsoft Word (DOC) and RTF 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 word, paragraph or page formatting. The target application WordPad is a “reduced” text editor, not a fully featured wordprocessor: WordPad opens Word (DOC) and RTF files but ignores most formatting elements such as text frames, alignment etc.

To apply “autoformatting”, the user selects Word (DOC) or RTF (Rich Text Format) as output format or sends the OCR result directly to Microsoft Word and enables the layout option "Recreate Source Document". Full “autoformatting” means that Readiris recreates a facsimile copy of the scanned document: the word, paragraph and page formatting of the original document are applied. The graphics and tables are included in the text file.

Similar typefaces (serif - sans serif, proportional - fixed, normal - 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, graphics and tables follow the source documents. In other words, Readiris allows to archive a true copy of your documents, be it a editable and compact text files instead of scanned images!

To see the recognized text correctly, the user may have to enable the “WYSIWIG” mode of his wordprocessor, mostly called “page layout” mode.

When “autoformatting” is applied, sorting applies only *partially*: the user can include and exclude specific zones, but any re-ordering of zones is simply ignored.

The graphics are included in the OCR results when the option "Include Graphics" is enabled. The availability of this option depends on performing full

“autoformatting”. (Alternatively, graphics can be saved separately with the command "Save Graphics" under the "File" menu.)

The layout option "Create Body Text" creates a non-formatted, “running” text. The text will be captured, but its formatting is entirely ignored. This option is used when a text needs to be recaptured but not its layout. Documents sent to WordPad yield “body text”.

The option "Retain Word and Paragraph Formatting" represents the middle road: the word formatting - font type, point size and typestyle - is retained across the recognition, and so is the paragraph formatting - the tabs and the alignment. No page formatting is applied: this option just puts one paragraph after the other, it does not recreate columns or copy the relative position of the various blocks, nor will it include the graphics. The tables are however recaptured correctly.

The option "Merge Lines into Paragraphs" sets the text flow within the paragraphs. Enabling this option makes Readiris apply the normal wordwrap typical of wordprocessors until a new paragraph starts, otherwise, a carriage return (CR or EOL code) is added after each line and hyphenated words remain so. Paragraph detection is enabled by default.

Here's 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 yields 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.

Readiris outputs tabular data to spreadsheets and wordprocessors: tables gets reconstructed cell by cell in worksheets and inserted as table objects in wordprocessor files. Recognizing tables can be done in many ways: they can be sent to the target applications Microsoft Excel and Word 97, sent to the clipboard in an “Excel” format, saved inside a Microsoft Word (DOC) and RTF file, or saved using a table format such as Excel (CSV stands for “comma delimited” data).



Generating Asian text implies creating body text - the user cannot apply "autoformatting" or retain the word and paragraph formatting. Secondly, the number of file formats is reduced in these languages.

Related Commands

The output mode and layout formatting options can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The "Format" button is equivalent to the "Text Format" command under the "Settings" menu.



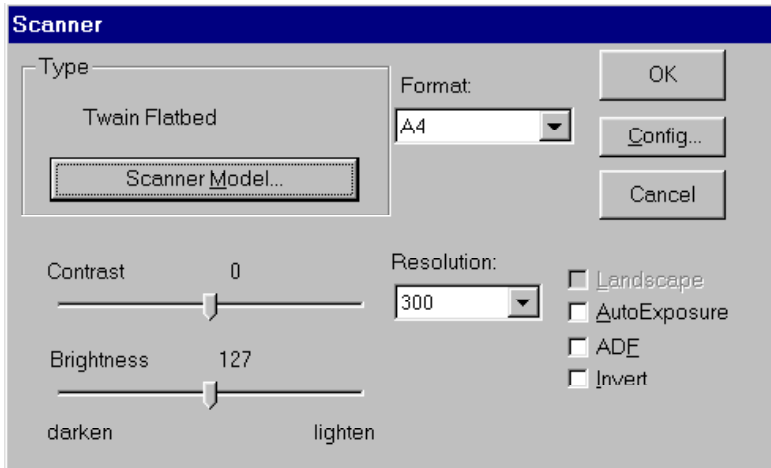
Scanner button

Allows the user to select his scanner model and determine its settings.

The user clicks the button "Scanner Model" to determine his scanner model. If the user's Readiris software licence was bundled with a scanner model, this step is probably unnecessary as his scanner may already be set up under Readiris.

Readiris supports a wide range of popular scanners; it also supports the scanning standard Twain and the scanning platforms Visioneer PaperPort, HP Document Assistant, HP JetSuite, Microtek PageSuite and Primax PaperEase. (Depending on the software bundle, the user may also find specialized manuals concerning the scanning platforms on the Readiris CD-ROM.)

When the user selects the option "<Image>" as his "scanner", prescanned images function as image source: the button "Scan" on the main toolbar is replaced by the "Open" button and the scanner option is no longer available under the "Source" button on the main toolbar.



Once the scanner is selected, this command allows the user to set the scanning resolution, the page format and orientation, brightness and contrast and allows him to indicate whether he is going to use the scanner's document feeder. With Twain compliant scanners, the scanning parameters are often set within the Twain interface.

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

The user enables the scanner's document feeder to scan multipage documents efficiently. By starting the scanning with the "Scan" button on the main toolbar, all pages will be scanned until the document feeder is empty.

By enabling the option "Landscape", the user indicates that the selected page orientation is wide ("landscape") rather than tall ("portrait"). The page orientation actually applies to reduced page formats: on an A4 flatbed scanner, the user can scan A5 pages (half that big) in portrait or landscape format, but he can only scan the full A4 surface in one direction.



The user sets the brightness, and, if available, the contrast. The contrast setting is only available on some scanners. The trackbar is dragged to modify the brightness and contrast; the selected values are represented numerically.

The option "Invert" allows the user to generate "inverted" images - this option is enabled to process full pages with white text on a black background.

The "Config." button is only available when the scanner allows it. It gives access to some advanced scanning parameters; with Twain scanners, clicking the "Config." button allows to select the Twain source. Alternatively, the user can use the command "Select Source" under the "File" menu.

Related Commands

The scanner selection and scanner setup can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The command "Select Source" under the "File" menu allows to select the Twain source.

The "Scanner" button is equivalent to the "Scanner" command under the "Settings" menu.

IMAGE TOOLBAR

The image toolbar contains the tools needed to zone the images comfortably and provides quick access to all frequently used commands required to handle scanned images.

This toolbar is only activated in the "preview" mode, when an image is displayed on-screen. Tooltips are available for all buttons.



Select Window button

Activates the window selection or "arrow" tool.

To modify, move and delete windows, the user has to select them first.

The window selection tool is the default image tool: when an image is displayed on-screen, this tool is enabled automatically.

The user selects the "Select Windows" button on the image toolbar and clicks inside a window. Rectangular markers now appear at each corner and in the middle of the window sides.

To select additional windows, the user holds down the Shift key while clicking on these extra windows.

To select a window and the included windows (of the other type), he holds down the Ctrl key while clicking on the main window.

To unselect windows, he clicks the mouse button elsewhere.

Related Commands

The user can display the sort order, type and coordinates of a window by pressing the Alt key while he selects it.

Windows can be cut, copied and deleted with the corresponding commands of the "Edit" menu. Windows can also be modified and moved with mouse cursor movements.



Text Window button

Creates a text window.

To window a text zone of interest, the user selects the "Text Window" tool and clicks the cursor in a corner of the window, stretches the window by moving the mouse to the opposite corner and clicks again.

Text windows are yellow, graphics are blue and table windows are purple.

Sides smaller than 1 mm are not allowed - windows of that size wouldn't contain any characters.

The user can 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 window type) intersect, they become a single window automatically.



The windows are sorted in the order of creation: arrows indicate the sort order. The user can modify the sort order - to include the relevant zones and exclude the zones of no interest, or to modify their order in the output file - with the "Sort" button on the main toolbar.

He can also combine sorting with manual windowing: the user applies page analysis to detect the windows and sorts the ones he wants to include. As soon as he starts drawing another window manually, all windows that were not selected up to that point are simply erased.

The sort order is ignored when "autoformatting" is used - this involves the use of the Word (DOC) or RTF file format or sending the OCR result to Microsoft Word and the enabling of the layout option "Recreate Source Document" with the "Format" button on the main toolbar. "Autoformatting" recreates a facsimile copy of the original document and therefore implies that the placement of columns, text blocks, graphics and tables is true to the source document.

The user can display the sort order, type and coordinates of a text window by pressing the Alt key while he selects it. The tooltip of the "Text Window" button indicates the number of text windows.

Related Commands

Windows can be cut, copied and deleted with the corresponding commands of the "Edit" menu. Windows can also be modified and moved with mouse cursor movements.

The "Graphic Window" button on the image toolbar allows to create graphic windows, the "Table Window" button on the image toolbar allows to create table windows.



Graphic Window button

Creates a graphic window.

As the OCR software Readiris generates black-and-white images, no greyscale or color images, it doesn't make sense to scan photographs with Readiris, but the user can capture lineart graphics effortlessly.

To create a rectangle around a illustration, cartoon etc., the user selects the "Graphic Window" tool and clicks the cursor in the upper left corner of the window, stretches the window by moving the mouse to the lower right corner and clicks again.

Graphic windows are blue, text windows are yellow and table windows are purple.

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.

The user can create several graphic windows per operation, but these will be collected, "stacked" in a single file when the command "Save Graphics" under the "File" menu is used.

Graphics can be included directly in the text file when "autoformatting" is applied - this involves the use of the Word (DOC) or RTF file format or sending the OCR result to Microsoft Word and the enabling of the layout option "Recreate Source Document" with the "Format" button on the main toolbar -, and saved separately with the command "Save Graphics" under the "File" menu.

The user can display the type and coordinates of a graphic window by pressing the Alt key while he selects it. The tooltip of the "Graphic Window" button indicates the number of graphic windows.

Related Commands

Windows can be cut, copied and deleted with the corresponding commands of the "Edit" menu. Windows can also be modified and moved with mouse cursor movements.

The "Text Window" button on the image toolbar allows to create text windows, the "Table Window" button on the image toolbar allows to create table windows.



Table Window button

Creates a table window.

Readiris detects “gridded” and “non-gridded” tables of figures - “gridded” (or “framed”) tables have borders around the cells and “non-gridded” tables don't - and outputs them to spreadsheets and wordprocessors. Tables get reconstructed by creating cells in Microsoft Excel worksheets or by inserting table objects in Word (DOC) and RTF files - the user must then select the layout option "Retain Word and Paragraph Formatting" or "Recreate Source Document".

To create a rectangle around a table, the user selects the "Table Window" tool and clicks the cursor in the upper left corner of the window, stretches the window by moving the mouse to the lower right corner and clicks again.

Table windows are purple, text windows are yellow and graphics are blue.

Sides smaller than 1 mm are not allowed - bitmaps of that size can't even contain a single table cell. It does not make any sense to create “irregular”, polygonal table windows.

The windows are sorted in the order of creation: arrows indicate the sort order. The user can modify the sort order - to include the relevant zones and exclude the zones of no interest, or to modify their order in the output file - with the "Sort" button on the main toolbar.

He can also combine sorting with manual windowing: the user applies page analysis to detect the windows and sorts the ones he wants to include. As soon as he starts drawing a other window manually, all windows that were not selected up to that point are simply erased.

The sort order is ignored when “autoformatting” is used - this involves the use of the Word (DOC) or RTF file format or sending the OCR result to Microsoft Word and the enabling of the layout option "Recreate Source Document" with the "Format" button on the main toolbar. “Autoformatting” recreates a facsimile copy of the original document and therefore implies that the placement of tables, columns, text blocks and graphics is true to the source document.

The user can display the sort order, type and coordinates of a table window by pressing the Alt key while he selects it. The tooltip of the "Table Window" button indicates the number of table windows.

Related Commands

Windows can be cut, copied and deleted with the corresponding commands of the "Edit" menu. Windows can also be modified and moved with mouse cursor movements.

The "Text Window" button on the image toolbar allows to create text windows, the "Graphic Window" button on the image toolbar allows to create graphic windows.



Analyze Page button

(Re-)executes page analysis on the current image.

The user avoids windowing the zones manually as Readiris decomposes the page automatically. Page analysis is particularly useful when columnized texts and documents with a complex page layout - possibly including graphics and tables - are OCRred.

Page decomposition uses three window types: it discriminates the text blocks from the tables and graphic zones containing photos, illustrations etc. on the page. A color code indicates the window type: text windows are yellow, graphics are blue and table windows are purple.

Page analysis is fast, skew-tolerant and highly accurate: it traces complex, "irregular" shapes.

Readiris detects "gridded" and "non-gridded" tables: "gridded" or "framed" tables have borders around the cells, "non-gridded" tables are not surrounded by cell borders. When the space between the columns of "non-gridded" tables is too big, Readiris may avoid windowing it as a table to avoid confusion with text columns.

The windows are sorted top-down, left to right to account for columnized documents. Arrows indicate the sort order. The user can change the sort order of



windows with the "Sort" button on the main toolbar and combine window sorting with manual windowing.

When "autoformatting" is applied, sorting applies only *partially*: the user can include and exclude specific zones, but any re-ordering of zones is simply ignored. "Autoformatting" recreates a facsimile copy of the original document, which implies that the placement of columns, text blocks, graphics and tables is true to the source document.

The user should select the document language *before* executing the page analysis when he is 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.

Related Commands

The button "Page Analysis" on the image toolbar enables automatic page decomposition, the "Sort" button on the main toolbar resorts the text windows.

The "Analyze Page" button is equivalent to the "Analyze Page" command under the "Process" menu.



Fit to Window button

Displays the entire page.

This zoom level is convenient for seeing the various text and graphic zones in relation to each other.

The user can toggle between "Fit to Window" and "Actual Size" by clicking the *right* mouse button.

Related Commands

The "Fit to Width" button displays the entire width of the document, the "Actual Size" button on the image toolbar and the commands "50% Actual Size" and "200% Actual Size" under the "View" menu display the document at its real size,

at half size and at double that size. At actual size, a screen pixel corresponds to an image pixel.

The "Fit to Window" button is equivalent to the "Fit to Window" command under the "View" menu.



Fit to Width button

Displays the entire width of a document.

Related Commands

The "Fit to Window" button on the image toolbar displays the entire document, the "Actual Size" button on the image toolbar and the commands "50% Actual Size" and "200% Actual Size" under the "View" menu display the document at its real size, at half size and at double that size. At actual size, a screen pixel corresponds to an image pixel.

The "Fit to Width" button is equivalent to the "Fit to Width" command under the "View" menu.



Actual Size button

Displays the document at its real size. A screen pixel corresponds to an image pixel.

The user can toggle between "Fit to Window" and "Actual Size" by clicking the *right* mouse button.

Related Commands

The "Fit to Window" button on the image toolbar displays the entire document, the "Fit to Width" button on the image toolbar displays the entire width of a document. The commands "50% Actual Size" and "200% Actual Size" under the "View" menu display the document at half and at double its real size.

The "Actual Size" button is equivalent to the "Actual Size" command under the "View" menu.



Rotate Left button

Rotates the scanned image 90° to the left.

The rotation takes a few seconds, as the image itself is updated, not just the display on-screen. If necessary, the page analysis is re-executed.

Related Commands

The "Rotate Right" button on the image toolbar rotates the scanned image 90° to the right, the "Turn Upside Down" button on the image toolbar rotates the scanned image 180°.

The "Rotate Left" button is equivalent to the "Rotate Left" command under the "View" menu.



Rotate Right button

Rotates the scanned image 90° to the right.

The rotation takes a few seconds, as the image itself is updated, not just the display on-screen. If necessary, the page analysis is re-executed.

Related Commands

The "Rotate Left" button on the image toolbar rotates the scanned image 90° to the left, the "Turn Upside Down" button on the image toolbar rotates the scanned image 180°.

The "Rotate Right" button is equivalent to the "Rotate Right" command under the "View" menu.



Turn Upside Down button

Rotates the scanned image 180°.

This command is used to correct the orientation of a page which was scanned upside down without having to rescan.

The rotation takes a few seconds, as the image itself is updated, not just the display on-screen. If necessary, the page analysis is re-executed.

Related Commands

The "Rotate Left" button on the image toolbar rotates the scanned image 90° to the left, the "Rotate Right" button on the image toolbar rotates the scanned image 90° to the right.

The "Turn Upside Down" button is equivalent to the "Turn Upside Down" command under the "View" menu.

PAGE TOOLBAR

The page toolbar allows to navigate through multipage documents and gives access to the page commands using the right-click ("Context" menu).

This toolbar is context-sensitive: it is displayed below the image zone only when multipage documents, not single pages, are processed.

The image toolbar highlights the current page.

Related Commands

The command "Select Page" from the "Context" menu brings the user to the page under his mouse cursor, the command "Delete Page" from the "Context" menu deletes the page under the user's mouse cursor from the multipage document, the command "Move Page Up" from the "Context" menu moves the page under the user's mouse cursor one page up in the document. and the command "Move Page Down" from the "Context" menu moves the page under the user's mouse cursor one page down in the document.

FILE MENU

The "File" menu contains all commands relating to file management: the management of windowing templates and Readiris configurations. It also allows the user to open prescanned images and select a Twain source.



Open

Opens image files to execute deferred OCR, regardless of the image source selected with the "Source" or "Scanner" buttons on the main toolbar.

The user is prompted to open prescanned image files, the scanned images appear in the image zone progressively.

Readiris supports black-and-white TIFF images (uncompressed, packbits, Group 3 and Group 4 compressed), Paintbrush (PCX) images and Windows bitmaps (BMP). Multipage TIFF files are also supported.

Opening prescanned images is particularly useful to convert faxes into editable text files. Should the user have any influence over his correspondents, he can ask them to send faxes with the "fine" quality - those faxes have the higher resolution of 200 dpi and will yield better OCR results.

The user can open multiple images by loading multipage (TIFF) files and by loading several prescanned images. To load several images, he selects the first image and holds down the Ctrl key as he selects additional images. To load a continuous range of images, he selects the first image and holds down the Shift key as he selects the last image. (As soon as multipage documents are loaded into memory, the page toolbar is added below the image zone.)

The user can also use "drag and drop" to open prescanned images. When image files are dragged from the Windows Explorer onto the Readiris image zone, they are opened promptly.

Finally, the user can select the disk as input source with the "Source" button on the main toolbar and click the "Open" button, and he can select the option "<Image>" as "scanner" with the button "Scanner" on the main toolbar and click the "Open" button to open prescanned images.

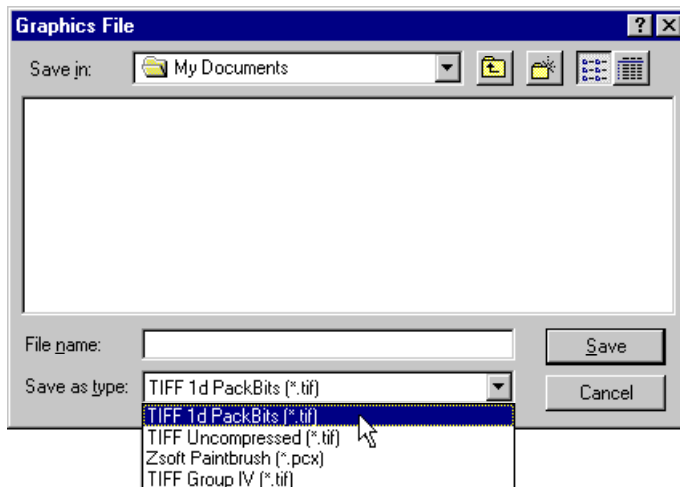
Related Command

The command "Save Full Page as Image" under the "File" menu allows to save images which can be opened and recognized later on.

Save Graphics

Saves the graphic windows.

This command saves all graphics (illustrations, cartoons etc.) zoned with the "Graphic Window" tool in a graphic file (without text recognition).



The user can create several graphic windows per operation, but these will be collected, "stacked" in a single file. (He can use the "Crop" command of his paint or photo retouching program to separate them.)

This command also determines the graphics format in which the graphics will be saved. The user should select a graphic format supported by his paint or photo retouching software. The file formats TIFF (uncompressed, packbits and Group 4 compressed) and Paintbrush (PCX) are available.

Graphics can be included directly in the text file when "autoformatting" is applied - this involves the use of the Word (DOC) or RTF file format or sending the OCR result to Microsoft Word and the enabling of the layout option "Recreate Source Document" with the "Format" button on the main toolbar.



Related Command

The command "Save Full Page as Image" under the "File" menu saves the entire page in an image file for deferred OCR.

Save Full Page as Image

Saves the entire page as an image file.

Saving scanned pages in image files leads to an interesting capability: the user can run deferred OCR on prescanned images. He can scan a document, save the entire page in a graphic file and recognize the image later on.

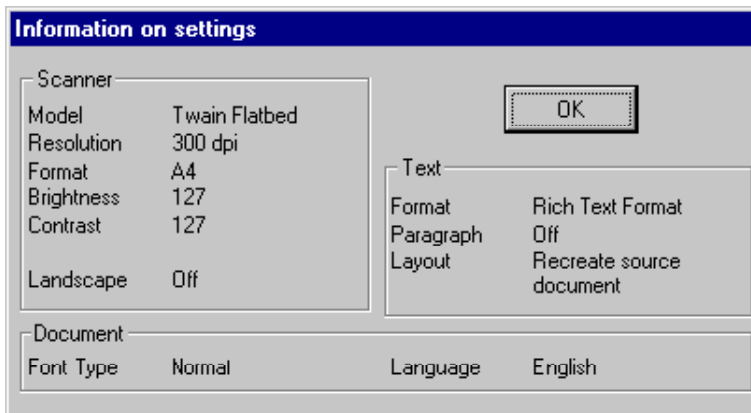
Related Commands

The button "Open" on the main toolbar opens prescanned images.

The command "Save Graphics" under the "File" menu saves graphic windows in image files.

Info

Displays the current Readiris configuration.



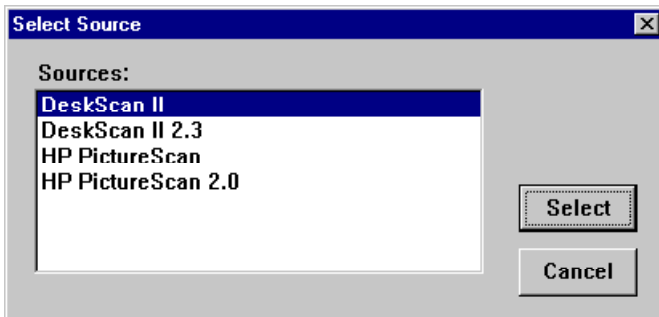
Related Commands

The command "Save Default Settings" under the "File" menu saves the current settings as default settings to avoid having to redefine them each time. Settings are loaded into memory with the command "Load Settings" under the "File" menu and saved with the command "Save Settings" under the "File" menu.

Select Source

Allows to select a Twain source.

This command strictly applies to Twain compliant scanners. Refer to the button "Scanner" on the main toolbar for more information on scanner setup.



Related Command

This command is equivalent to the button "Configure" under the "Scanner" button on the main toolbar.

Acquire

Refer to the "Scan" button on the main toolbar.

Load Layout

Loads a windowing layout into memory.



Layout files contain predefined windowing structures. Zoning templates are particularly useful when documents with a similar page layout are OCR'd, as the user avoids having to redraw the same layout.

Loading a windowing template into memory automatically disables page analysis. The zoning layout remains active until page analysis is re-enabled with the "Page Analysis" button on the main toolbar.

The active layout is applied when documents are automatically recognized with the "Auto" button on the main toolbar.

Related Commands

Zoning layouts can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The command "Save Layout" under the "File" menu saves the current layout as defined on a scanned document in a windowing template for future use.

Layouts can also be loaded into memory by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

Save Layout

Saves the current zoning layout as drawn on the image in a windowing template.

Layout files contain predefined windowing structures. Zoning templates are particularly useful when documents with a similar page layout are OCR'd, as the user avoids having to redraw the same layout again.

Related Command

The command "Load Layout" under the "File" menu loads a layout into memory.

Load Settings

Loads a Readiris configuration into memory.

Settings files determine which scanner model is being used and its settings, the output mode for the recognized document, the language and characteristics of

the document to be recognized etc. *All* operational parameters of Readiris are saved in the settings files.

Related Commands

Settings are saved with the command "Save Settings" under the "File" menu. As the basic settings rarely need to be changed, the command "Save Default Settings" under the "File" menu saves the current settings as default settings to avoid having to redefine them each time.

Save Settings

Saves the current Readiris configuration in a settings file for later use.

Settings files determine which scanner model is being used and its settings, the output mode for the recognized document, the language and characteristics of the document to be recognized etc. *All* operational parameters of Readiris are saved in the settings files.

Related Commands

As the basic settings rarely need to be changed, the command "Save Default Settings" under the "File" menu saves the current settings as default settings to avoid having to redefine them. Settings are loaded into memory with the command "Load Settings" under the "File" menu.

Save Default Settings

Saves the current Readiris configuration as default settings.

Settings files determine which scanner model is being used and its settings, the output mode for the recognized document, the language and characteristics of the document to be recognized etc. *All* operational parameters of Readiris are saved in the settings files.

The default settings are loaded into memory automatically at each startup. As these settings rarely change, the user avoids having to redefine them.



Related Commands

Settings are saved with the command "Save Settings" under the "File" menu and loaded into memory with the command "Load Settings" under the "File" menu.

Exit

Quits the Readiris software.

Related Command

The default settings saved with the command "Save Default Settings" under the "File" menu will be loaded into memory automatically at the next startup.

EDIT MENU

The commands under the "Edit" menu are limited to the "preview" mode: they are available only when an image is displayed in Readiris' image zone.

They concern the windows: the user can delete, cut, copy and paste them. Shortcuts are available for all commands.

Undo

Cancels the last operation.

This command undoes cut, copy and paste operations of text, graphic and table windows. If the user erroneously deleted, moved, resized etc. windows, "Undo" will cancel the last operation. This button does not "undo" window selection operations.

Cut

Transfers the selected window(s) to an internal buffer.

Choosing the "Window Selection" or "arrow" tool on the image toolbar and clicking inside a window suffices to select it. Rectangular markers appear at each corner and in the middle of the window sides. To select additional windows, the user holds down the Shift key while he clicks on these extra windows. To

select a window and the included windows (of another type), he holds down the Ctrl key while clicking on the main window.

Related Commands

The command "Paste" under the "Edit" menu allows to insert the selected window(s) stored in an internal buffer. The command "Clear" under the "Edit" menu deletes the selected window(s) irretrievably. The command "Undo" under the "Edit" menu undoes delete operations.

Copy

Copies the selected window(s) to an internal buffer.

Choosing the "Select Windows" or "arrow" tool on the image toolbar and clicking inside a window suffices to select it. Rectangular markers appear at each corner and in the middle of the window sides. To select additional windows, the user holds down the Shift key while he clicks on these extra windows. To select a window and the included windows (of another type), he holds down the Ctrl key while clicking on the main window.

Related Commands

The command "Paste" under the "Edit" menu allows to insert the selected window(s) stored in an internal buffer. The command "Cut" under the "Edit" menu cuts the selected window(s) to an internal buffer, the command "Clear" under the "Edit" menu deletes the selected window(s) irretrievably.

Paste

Pastes the window(s) stored in an internal buffer.

Windows are pasted in their original position, and the user has to drag them to their new location.

Related Commands

The command "Copy" under the "Edit" menu copies the selected window(s) to an internal buffer. The command "Undo" under the "Edit" menu undoes delete operations.



Clear

Deletes the selected window(s) irretrievably.

Choosing the "Select Windows" or "arrow" tool on the image toolbar and clicking inside a window suffices to select it. Rectangular markers appear at each corner and in the middle of the window sides. To select additional windows, the user holds down the Shift key while he clicks on these extra windows. To select a window and the included windows (of another type), he holds down the Ctrl key while clicking on the main window.

Related Commands

The command "Cut" under the "Edit" menu transfers the selected window(s) to an internal buffer. The command "Undo" under the "Edit" menu undoes delete operations.

Select All

Selects all windows of both window types simultaneously.

Related Commands

The command "Cut" under the "Edit" menu transfers the selected window(s) to an internal buffer. The command "Copy" under the "Edit" menu copies the selected window(s) to an internal buffer. The command "Paste" under the "Edit" menu allows to insert the selected window(s) stored in an internal buffer. The command "Clear" under the "Edit" menu deletes the selected window(s) irretrievably. The command "Undo" under the "Edit" menu does not "undo" selection operations.

SETTINGS MENU

The "Settings" menu allows to specify the document characteristics and OCR options. It also allows to configure the scanner.

Scanner

Refer to the "Scanner" button on the main toolbar.

Language

Refer to the "Language" button on the main toolbar.

Font Type

Determines the font type of the document to be recognized.



The setting "Normal" is used for the printing qualities typeset, typewritten, laser printed, inkjet printed and "letter quality" dot matrix printing (also called "25 pin" or "NLQ" dot matrix), the setting "Dot matrix" is strictly reserved for draft dot matrix printing (also called "9 pin" dot matrix); such texts require highly specialized recognition techniques.

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

This command does not apply to Asian documents.

Related Command

The font type can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

Character Pitch

Determines the character pitch of the document to be recognized.





The setting "Fixed" is selected when the document is composed of a fixed font. With fixed or "monospaced" typefaces, each character of the typeface has the same width. An "i" takes up as much horizontal space on a line as a "w", as is the case in this sentence. Such typefaces are typically found in documents produced by typewriters.

The setting "Proportional" is selected when the document is composed of a proportional font. With proportional fonts, the width of the letters depends on their shape. A "w" takes up more horizontal space on a line than an "i", as is the case in this sentence. Virtually all fonts found in newspapers, magazines and books are proportional.

The setting "Auto" is selected to have Readiris detect the character pitch automatically. It is enabled by default and can be left untouched at all times.

This command does not apply to Asian documents.

Related Command

The character pitch can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

Text Format

Refer to the "Format" button on the main toolbar.

View after Scan

Enables the "preview" mode, where the scanned documents are displayed on-screen in the image zone.

All commands concerning the image preview - the buttons on the image toolbar and the commands under the "Edit" menu - are available only when an image is opened in the image zone.

This minor option is enabled by default, and is best left untouched.

Page Analysis

Refer to the "Page Analysis" button on the main toolbar.

Enable Wizard on Toolbar

“Installs” the OCR wizard or the automatic mode on the main toolbar: when this option is enabled, the "OCR Wizard" button that guides the user through the OCR process is placed on the toolbar, when it is disabled, the "Auto" button that triggers automatic recognition is placed on the toolbar.

Related Commands

The "OCR Wizard" button on the main toolbar and the command "OCR Wizard" under the "Process" menu start the OCR wizard.

The option "Enable Wizard on Startup" under the "Settings" menu sees to it that the OCR wizard starts running each time Readiris is started up. The option "Enable Wizard on Startup" in the first screen of the wizard has the same effect.

Enable Wizard on Startup

Sees to it that the OCR wizard starts running each time Readiris is started up.

The option "Enable Wizard on Startup" in the first screen of the wizard has the same effect.

This option is enabled by default.

Related Commands

The "OCR Wizard" button on the main toolbar and the command "OCR Wizard" under the "Process" menu start the OCR wizard.

The option "Enable Wizard on Toolbar" under the "Settings" menu “installs” the OCR wizard or the automatic mode on the main toolbar: when this option is enabled, the "OCR Wizard" button that guides the user through the OCR process is placed on the toolbar, when it is disabled, the "Auto" button that triggers automatic recognition is placed on the toolbar.



VIEW MENU

The "View" menu contains the zoom levels and rotation commands. A minor diagnostic command is added. Buttons on the image toolbar provide quick access to all frequently used commands.

Fit to Window

Refer to the "Fit to Window" button on the image toolbar.

Fit to Width

Refer to the "Fit to Width" button on the image toolbar.

50% Actual Size

Displays the document at half its real size. (At actual size, a screen pixel corresponds to an image pixel.)

Related Commands

The "Fit to Window" button on the image toolbar displays the entire document, the "Fit to Width" button on the image toolbar displays the entire width of a document. The commands "Actual Size" and "200% Actual Size" under the "View" menu display the document at actual size and at double its real size.

Actual Size

Refer to the "Actual Size" button on the image toolbar.

200% Actual Size

Displays the document at twice its real size. (At actual size, a screen pixel corresponds to an image pixel.)

Related Commands

The "Fit to Window" button on the image toolbar displays the entire document, the "Fit to Width" button on the image toolbar displays the entire width of a docu-

ment. The commands "50% Actual Size" and "Actual Size" under the "View" menu display the document at half its actual size and at double its real size.

Rotate Left

Refer to the "Rotate Left" button on the image toolbar.

Rotate Right

Refer to the "Rotate Right" button on the image toolbar.

Turn Upside Down

Refer to the "Turn Upside Down" button on the image toolbar.

Coordinates

This minor diagnostic option displays the coordinates of the mouse cursor in document pixels.



Related Command

The user can display the type, coordinates and sort order of a window by pressing the Alt key while he selects it.

PROCESS MENU

The "Process" menu contains the commands needed to scan, decompose, sort and recognize documents.

OCR Wizard

Refer to the "OCR Wizard" button on the main toolbar.



Automatic OCR

Refer to the "Auto" button on the main toolbar.

Scan

Refer to the "Scan" button on the main toolbar.

Open

Refer to the "Open" button on the main toolbar.

Sort

Refer to the "Sort" button on the main toolbar.

Recognize

Refer to the "Recognize" button on the main toolbar.

Analyze Page

Refer to the "Analyze Page" button on the image toolbar.

LEARN MENU

The "Learn" menu contains all commands relating to the interactive learning.

Font training can substantially enhance the accuracy of the recognition system. When the user tries to read defaced and stylized font shapes which Readiris does not recognize optimally, training can overcome this temporary "failure".

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'.

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. Readiris can for instance 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 "☎".)

Learning does not apply when Asian documents are read: learning does not make sense for these languages which use thousands of different symbols - assuming that the user is able to enter the ideograms, not an easy task when using a Western keyboard.

Readiris enters the interactive learning phase at the end of the recognition. When multipage documents are read, the users goes through the recognition and learning phases page by page.

The recognized text is displayed progressively and the system stops on doubtful characters, or - in the case of 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 of all, the user should verify if he has activated the correct font dictionary and dictionary mode - these are always indicated in the title of the learning window (as in the tooltip of the "Learn" button on the main toolbar). If that is not the case, he should click the "Abort" button - the last image is redisplayed with the zoning as was created -, enable the right font dictionary or dictionary mode and run the OCR again.

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

Learn

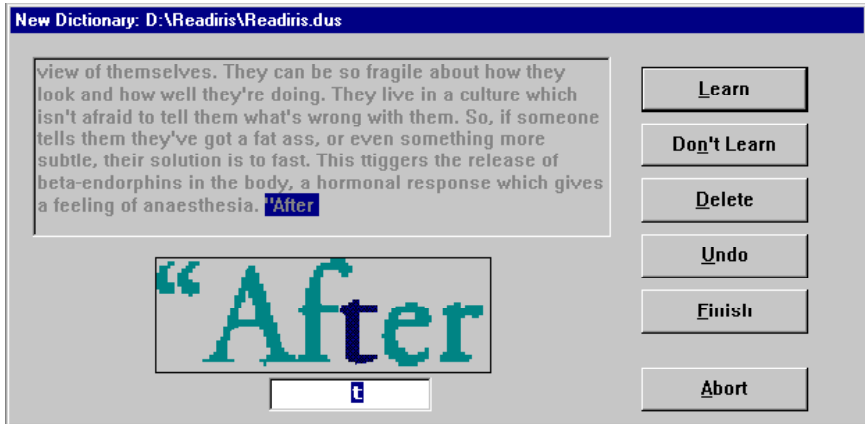
The user agrees with the proposed solution or corrects it. The program saves this doubtful character in the font dictionary as “sure”, final. Future recognition will no longer require his intervention, the shape is considered learnt once and for all.

In the example above, the system stops on six joined characters, and "Learn" is to accept a shape which cannot be confused with other characters.

Don't Learn

The user agrees with the proposed solution or corrects it. The difference with the "Learn" button is that the learnt symbol gets the status “unsure” in the font 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 "t" above is close to the "r" symbol -, and the user clicks "Don't Learn" so as not to confuse the two symbols further on.

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 etc. -, and to erase any other unwanted symbol.

Undo

The user goes back to correct mistakes. He 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.

This button is clicked when the recognition is highly accurate and does not require detailed proofreading. (When the "Finish" button is clicked in a multipage document, the interactive learning is aborted for all pages; the OCR for that document continues in automatic mode.)



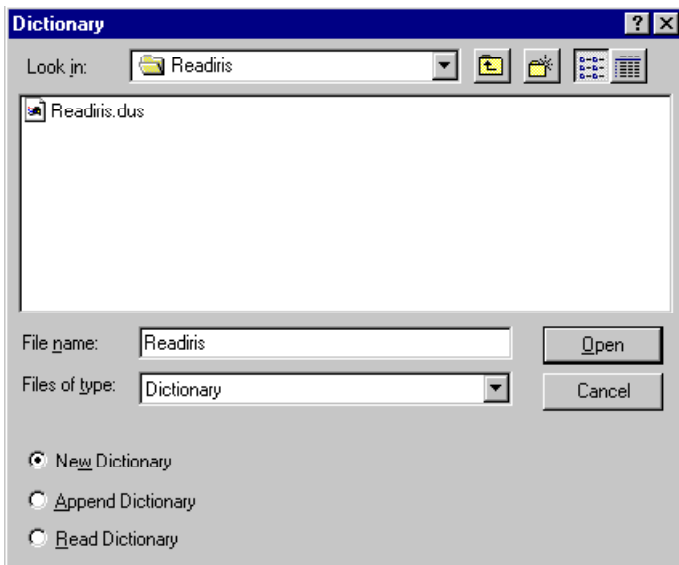
The "Finish" button should not be confused with the "Abort" button: with the "Abort" button, no output is generated and the OCR must be run again, with the "Finish" button, the text is created, it just isn't proofread in detail.

The results of a training session are stored in files called "font dictionaries" for future use. These font dictionaries can be loaded to make good use of previous training, so that Readiris will recognize the learnt character shapes automatically.

Font Dictionary

Selects or defines a font dictionary and its mode of operation.

User dictionaries contain font information the system learns during the interactive learning. When many documents of the same type are recognized, the user can avoid having to go through the same learning process every time. The learnt characters can be stored in a font dictionary and that information can be used when documents of the same type are recognized.



The user also sets the dictionary mode: "New Dictionary" creates a new dictionary, the user starts without any previous knowledge. The option "Append Dictionary" uses the previously learnt font information and completes it, the option "Read Dictionary" uses the previously learnt font information but does not complete it further.

The new mode is selected when a single page is recognized. To recognize many pages of the same type - pages with the same fonts and printing quality - the new mode is selected 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 font dictionary in the append mode.

As font dictionaries are limited to 500 learnt shapes, the user is recommended to create specific dictionaries for specific applications, for instance per type of



document. For clarity, it is recommend to give meaningful names to the font dictionaries, for instance REPORT.DUS, PALATINO.DUS dus etc. Dictionaries have the default extension *.DUS.

When the user enters a filename for a new dictionary and activates the “append“ mode, an empty font dictionary is created to be completed.

When a dictionary is full, the learning has no further effect: the results of the learning are no longer held in memory or written to a dictionary.

Related Commands

The dictionary mode can also be set with the options "New Font Dictionary", "Append Font Dictionary" and "Read Font Dictionary" under the "Learn" menu.

The tooltip of the "Learn" button on the main toolbar indicates the font dictionary and its mode.

The "Learn" button on the main toolbar enables the interactive learning.

A font dictionary and its mode can also be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

New, Append, Read Font Dictionary

Sets the mode of the font dictionary.

"New Font Dictionary" creates a new dictionary, the user starts without any previous knowledge. The option "Append Font Dictionary" uses the previously learnt font information and completes it, the option "Read Font Dictionary" uses the previously learnt font information but does not complete it further.

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

When a dictionary is full, the learning has no further effect: the results of the learning are no longer held in memory or written to a dictionary.

The tooltip of the "Learn" button indicates the font dictionary and its mode.

Related Commands

The mode can also be set with the options "New Dictionary", "Append Dictionary" and "Read Dictionary" of the "Font Dictionary" command under the "Learn" menu, and can be enabled by loading a Readiris configuration with the command "Load Settings" under the "File" menu.

The "Learn" button on the main toolbar enables the interactive learning, the command "Font Dictionary" under the "Learn" menu selects a font dictionary and sets its mode.

Interactive Learning

Refer to the "Learn" button on the main toolbar.

REGISTER MENU

The "Register" menu allows the user to register his software licence.

Registration Wizard

Starts the registration wizard.

The registration wizard guides the user through the licence registration process comfortably. The user can register in many ways: by sending in the registration card or faxing its electronic counterpart, by calling I.R.I.S. during working hours and by filling out a registration form on the I.R.I.S. web site.

Depending on the software bundle, he'll receive the softkey in return as may be needed to continue using the Readiris software after one month.

benefits, including free product support and special offers, are strictly limited to registered users.

HELP MENU

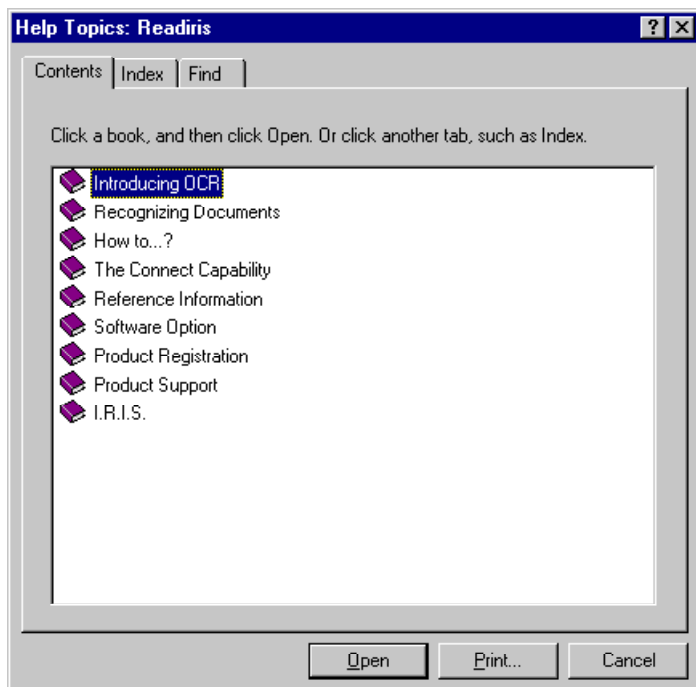
The "Help" menu contains the on-line help system.

Some last-minute information may not be included in this manual. The user is recommended to consult the on-line help system for additional information on Readiris' capabilities.

Help Topics

Allows to navigate through the on-line help system.

The available information cannot only be consulted on-screen but also printed out.



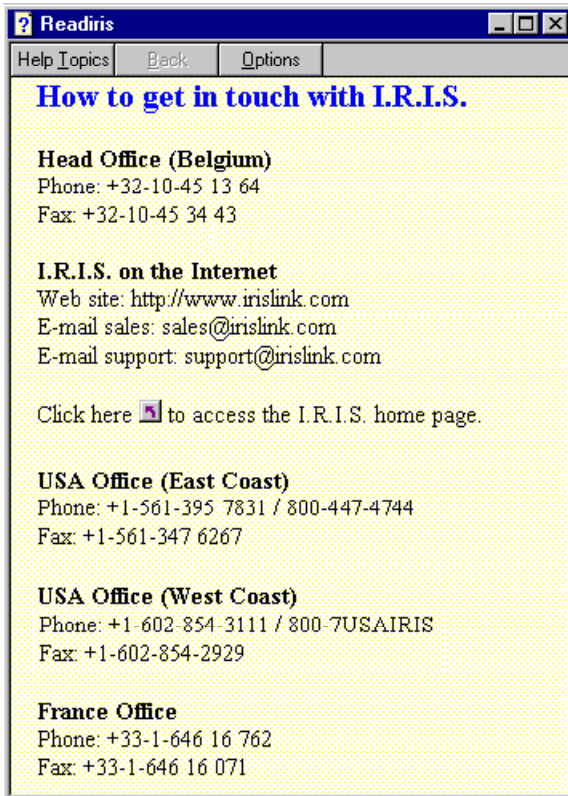
Product Support

Informs the user how to get Readiris product support.



Contact I.R.I.S.

Gives the coordinates of the I.R.I.S. offices.



About Readiris

Displays the startup screen where the software version and copyrights are displayed.

The user clicks anywhere to return to the Readiris software.

CONTEXT MENU

The "Context" menu gives access to the page commands of multipage documents. These commands allow to edit multipage documents, mainly to correct scanning errors. The user can delete pages from the document and move pages to other locations in the document.

This menu is invoked by right-clicking over a page icon in the page toolbar - this toolbar is displayed below the image zone only when multipage documents, not single pages, are processed.

The commands from this menu apply to the page under the user's mouse cursor, *not* to the current page.

Select Page

The user goes to the page under his mouse cursor.

The current page is highlighted in the image toolbar and mentioned in the Readiris title bar.

Alternatively, the user can double-click on a page's icon in the page toolbar to select a page.

Related Commands

The command "Delete Page" from the "Context" menu deletes the page under the user's mouse cursor from the multipage document, the command "Move Page Up" from the "Context" menu moves the page under the user's mouse cursor one page up in the document and the command "Move Page Down" from the "Context" menu moves the page under the user's mouse cursor one page down in the document.

Delete Page

The user erases the page under his mouse cursor from the multipage document.



Related Commands

The command "Select Page" from the "Context" menu brings the user to the page under his mouse cursor, the command "Move Page Up" from the "Context" menu moves the page under the user's mouse cursor one page up in the document and the command "Move Page Down" from the "Context" menu moves the page under the user's mouse cursor one page down in the document.

Move Page Up

The user moves the page under his mouse cursor one page up in the multipage document.

Related Commands

The command "Select Page" from the "Context" menu brings the user to the page under his mouse cursor, the command "Delete Page" from the "Context" menu deletes the page under the user's mouse cursor from the multipage document and the command "Move Page Down" from the "Context" menu moves the page under the user's mouse cursor one page down in the document.

Move Page Down

The user moves the page under his mouse cursor one page down in the multipage document.

Related Commands

The command "Select Page" from the "Context" menu brings the user to the page under his mouse cursor, the command "Delete Page" from the "Context" menu deletes the page under the user's mouse cursor from the multipage document and the command "Move Page Up" from the "Context" menu moves the page under the user's mouse cursor one page up in the document.

Appendix

PRODUCT DESCRIPTION

This appendix gives a detailed product description of Readiris.

Recognition

Connectionist technology
omnifont feature extraction
self-learning routines derived from a proprietary neural network technique
contextual and linguistic analysis
powerful learning module

Linguistic support

55 languages (American English, British English, Afrikaans, Albanian, Basque, Brazilian, Breton, Bulgarian, Byelorussian, Catalan, Corsican, Croatian, Czech, Danish, Dutch, Estonian, Finnish, French, Frisian, German, Greek, Hungarian, Icelandic, Indonesian, Irish (Gaelic), Italian, Lithuanian, Luxemburgh, Macedonian, Malay, Norwegian, Nynorsk, Polish, Portuguese, Romanian, Russian, Scottish (Gaelic), Serbian, Slovak, Slovenian, Spanish, Swahili, Swedish, Tagalog, Turkish and Ukranian)

7 mixed language modes (Bulgarian-English, Byelorussian-English, Greek-English, Macedonian-English, Russian-English, Serbian-English and Ukranian-English)



linguistic modules using knowledge about syllables and a 100,000 word lexicon per language

software option “Asian OCR add-on” provides OCR of Japanese and Simplified Chinese

to view and edit Asian documents, an Asian, Japanese or Chinese version of the Windows operating system is installed or specialized “emulating” software (such as UnionWay AsianSuite or TwinBridge AsianBridge) is on a Western version of Windows

Character sets

all American and European character sets, including the Central-European, Cyrillic (“Russian”), Greek, Baltic, Japanese and Simplified Chinese alphabets

use of mixed characters sets for recognition of “Western” words (proper names, brand names etc.) in Cyrillic (“Russian”), Greek and Asian documents

numeric mode for recognition of tables of figures

trainable on any special symbol: mathematic and scientific symbols, dingbats etc.

Printing quality

typeset, typed, laser printed, inkjet printed, letter quality dot matrix (“25 pin” or “NLQ”) and draft dot matrix (“9 pin”) printed documents

lineskew tolerance 7 degrees

Fonts

virtually any proportional and fixed (“monospaced”) typeface

normal, bold, italic and underlined typestyles

detection and recreation of font type (serif-sans serif, proportional-fixed, normal-condensed), typestyle (bold,

italic and underlined) and point size of original document in "autoformatting" mode

character sizes 6 to 72 point (0.08 to 1" or 0.21 to 2.54 cm)

drop letter ("drop caps") recognition

User interface

toolbar based operation

OCR wizard guides user through the recognition process

automatic mode allows "one-click" OCR

recognition of single pages and multipage documents

pop-up style user verification

stand-alone operation or call from within Windows applications through "Connect" capability

DDE command set available to integrate OCR function

Preview

image preview with 5 zoom levels and 3 rotate commands

highly accurate, skew-tolerant automatic page analysis discriminates text zones, tables and graphics

detection of white text on a black background with automatic inversion at recognition time and image inversion of all scanned pages

adjustable manual windowing of relevant zones using rectangular and polygonal windows

storage of zoning templates for future use



Text output

all leading wordprocessors and text formats including Microsoft Word (DOC), RTF and HTML

output to Windows clipboard

direct, automatic export of OCR result to wordprocessor Microsoft Word, spreadsheet Microsoft Excel and Windows accessory WordPad

paragraph detection ensures wordwrap

“autoformatting” feature recreates facsimile copy of original document through *word formatting* - font type (serif-sans serif, proportional-fixed, normal-condensed), typestyle (bold, italic and underlined) and point size -, *paragraph formatting* - alignment (left, centered, right and justified) and indentation - and *page formatting* - placement of text blocks, columns, graphics and tables

Table output

detection of “gridded” and “non-gridded” tables by page analysis

recreation of tables cell by cell in spreadsheets and wordprocessors (table objects in Microsoft Word (DOC) and RTF files)

direct, automatic export of tables to spreadsheet Microsoft Excel and wordprocessor Microsoft Word

Graphic output

black-and-white graphics in (compressed) TIFF and Paintbrush (PCX) format

graphics included in RTF file when “autoformatting” is applied

- Scanner support** supports wide range of flatbed, sheetfed and hand-held scanners and “all-in-one” MFPs (“multifunctional peripherals”)
compliant with Twain scanner standard and HP SCL software
supports scanning platforms Visioneer PaperPort, HP Document Assistant, HP JetSuite, Microtek PageSuite and Primax PaperEase
- Graphic input** black-and-white images in TIFF (uncompressed, packbits, Group 3 and Group 4 compressed), multipage TIFF, Paintbrush (PCX) and Windows bitmap (BMP) format
allows direct recognition of fax files
“drag and drop” of images onto the Readiris image zone
- System requirements** a 486 based Intel PC with 16 MB RAM and 30 MB free disk space. A Pentium based PC with 32 MB RAM is recommended under Windows NT 4.0 and to use the “Connect” capability
the Windows 98, 95 or Windows NT 4.0 operating system
to view and edit Asian documents, an Asian, Japanese or Chinese version of the Windows operating system is installed or specialized “emulating” software (such as UnionWay AsianSuite or TwinBridge AsianBridge) is on a Western version of Windows
MacOS version available
- Linguistic versions** English, Dutch, French, German, Italian and Spanish



consult the I.R.I.S. web site for the availability of additional localized versions