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Thank you for choosing FineReader!

FineReader is a powerful tool that saves you time working with documents. We have been working on this program for many years and will be happy if it makes your life easier!

The team of ABBYY (BIT Software)

Optical Character Recognition System

FineReader Version 4.0

User's Guide

**ABBYY (BIT Software)
Moscow 1999**

ABBYY (BIT Software)

FineReader 4.0

User's Guide

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We all need to input textual data into computers. This could be text from newspaper and magazine articles, contracts, business letters, faxes, price lists, questionnaires, etc. 90% of all the documents we receive are on paper. For years there was only one way to input printed documents – via the keyboard. Do you remember the hours you have spent typing text from a document? How wonderful if the computer could read by itself, straight from the sheet of paper!

Sometimes dreams come true. The FineReader Optical Character Recognition (OCR) program will allow your computer and scanner to read printed text by themselves.

But can't the scanner do the job on its own?

No. The scanner only makes a picture, a photograph of the text. A photograph is a set of black and white dots, or, in other words, a *graphic file*, and can't be edited in text editors such as MS Word, WordPerfect, Word Pro, etc. You need an OCR system that will find symbols in the set of black and white dots, “recognize” a letter in each symbol and turn the image into computer-editable text. Such a program will create a file that is understandable by text editors and desktop systems.

So I can now input my document to my computer automatically?

Yes, you can now input your document to your computer automatically without retyping it on the keyboard.

Enjoy!

C h a p t e r 1

Getting Started

FineReader is an OCR program meant for automatic input of documents in the computer. The principle of its work is quite simple: you insert a page with text in the scanner, the scanner makes a picture of the text, after that FineReader recognizes the image and displays the text file in the text editor. In 30-60 seconds you will have the necessary text in your text editor, with page layout, color pictures and tables retained.

How to recognize text or table

You have installed FineReader on the computer, and connected a scanner to it. (Detailed instruction about system installation is given in the Chapter “Installation and Setup”, p. 22.)

Now you can input text to the computer. (If FineReader is already running, continue with item 5.)

How do I input the text of a paper document to my computer?

1. Switch the scanner on.
2. Switch the computer on.
3. Run FineReader. To do this, from the *Start* menu, select *Programs/ABBYY FineReader/FineReader 4.0*.

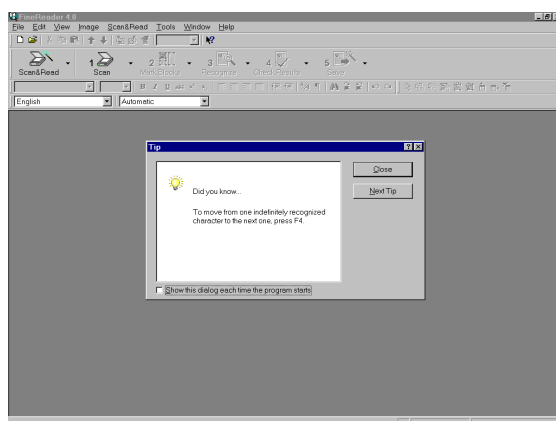


Figure 1. Main window of FineReader 4.0.

You will see the main window of FineReader (Figure 1, p. 12) and the *Tips* dialog. This dialog box contains useful information.

After that you will see the *Welcome* dialog.

4. Insert the “Recognition sample” (you will find it in the end of this book) in the scanner.
5. Click the *Scan&Read Wizard* button located in the upper left corner of the screen.
6. Follow the instructions of Scan&Read Wizard. In several minutes you will learn how to transform paper document into a file.
The process of document input is very simple and consists of the following three steps: scanning, marking of blocks and recognition.
7. **If you use a flatbed scanner**, operation will be accompanied by a sound and a moving light under the scanner cover.

If you use an edge-fed scanner, the sheet of paper will start to move, as with a fax.

If you use a hand-held scanner, you will need to move it across the sheet of paper yourself. Click the start-button and move the scanner across the page.

To finish scanning, press any key on the keyboard. (These are tips for the most of scanners. If you have any problems, read scanner user’s manual.)

Note: If the *Scanner parameters* dialog box is displayed, make sure that the parameters are set correctly: resolution – 300 dpi, brightness – middle value, scanning mode – gray); then click the *Scan* (or the alike) button in the *Scanner parameters* dialog.

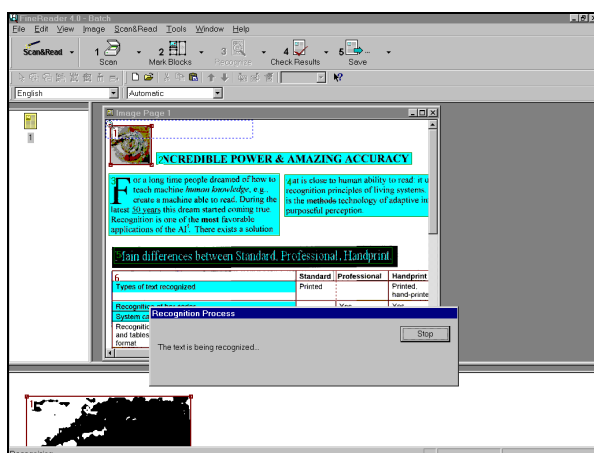


Figure 2. Recognition in process...

7. After scanning, the *Image* window containing a “picture” of the page, will be displayed. Next, the program automatically starts analyzing the image locating text, pictures and tables and, finally, recognizes text and tables. During the recognition, FineReader highlights the recognized part (Figure 2, p. 13).

THAT’S ALL YOU NEED TO DO! THE RESULTS OF FINE READER’S WORK CAN NOW BE SEEN IN THE “TEXT” WINDOW (Figure 3).

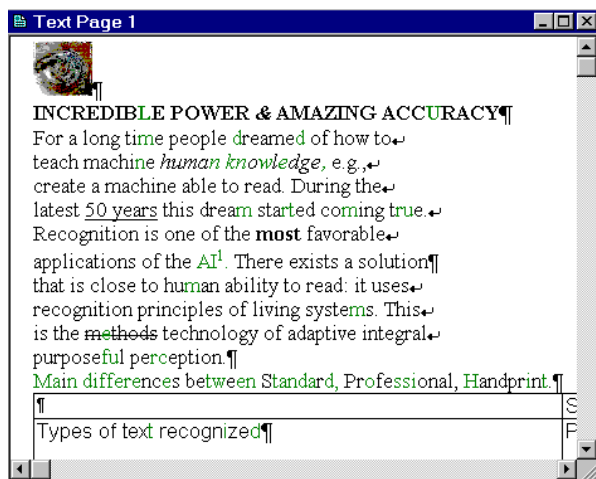


Figure 3. “Text” window.

Text window is the in-built text editor of FineReader. Here you can edit the recognized text and check recognition results (*Check Results* button).

8. You can send recognized text to MS Word, Excel, etc. To do this, click the arrow to the right of the *Save* button and from the displayed menu, select *Send to... (MS Word, MS Excel, etc.)*.
9. Recognition results can be saved onto the disk as well. Click the arrow to the right of the *Save* button and from the displayed menu, select *Save to File*. The program will suggest saving recognition results in the DOC format. This format allows saving not only text, but also information about page layout, pictures and tables.

How to recognize an image file

1. Switch the computer on.
2. Run FineReader. To do this, from the *Start* menu, select *Programs/ABBYY FineReader/FineReader 4.0*.

3. Next, click the arrow to the right of the *Scan&Read* button and from the opened menu select the *Open&Read* item.
4. Select the necessary drive, folder and graphic file in the *Open* dialog box. This can be a file with a TIF, PCX, BMP, DCX or JPEG extension (the full list of the formats that FineReader loads, is given in Appendix).
For example, open demo.tif (by default it is located in the c:\Program Files\ABBYY FineReader\Demo folder). In the *Image* window you will see a “photograph” of the page. After that the program will start recognizing the image and in 30-90 seconds you will see the result in the *Text* window.
5. Now you can send the results to another application or save it on the disk. See items 8, 9 in the previous section.

How to recognize forms (available in FineReader Professional and Handprint)

What is meant by recognizing a form?

Forms recognition means recognition of standardized paper forms, such as questionnaires, bulletins, or payment documents. Standardized forms are forms with the alike fields layout.

What do you want to achieve? You have 50, 100 or 10,000 examples of a form. They contain *fields* with information, e.g., “Last Name”, “First Name”, “Payment Sum, in writing”, “Payment Sum, in digits” and so on. You need to input this information into the database, by reading the value of each *field* of each form and recording it in the corresponding *field* of the database. This way, entries from the same place on all the forms will be recorded together and in order in the database.

We shall explain how to input forms using the sample forms given at the end of this manual – “Job Application”. We shall use them in the example that follows.

These forms are typewritten. In real life, forms can be also filled in by hand. It is **FineReader Handprint** that is used to recognize forms filled in using handwriting.

A prepared batch of forms is located in the c:\Program Files\ABBYY FineReader\Forms\Demo folder, identified with a template name **DEMO.FRM**. You will find the description of this file in this chapter.

How can I input a batch of forms?

Prepare the original of your machine-readable form. (You will find three forms one of which is already filled in at the end of this manual.) We shall take the form before it is filled in as the original.

1. Make copies of this original by printing it or using a laser printer, etc. Do not make alterations in your copy to ensure that the layout of the fields on the copies coincides exactly with the disposition of the fields on the original.
2. Fill in the forms.
3. Run FineReader 4.0 Forms, selecting *Programs/ABBYY FineReader 4.0 Forms* from the *Start* menu.

You will see the *Batch of Forms* dialog (Figure 4).

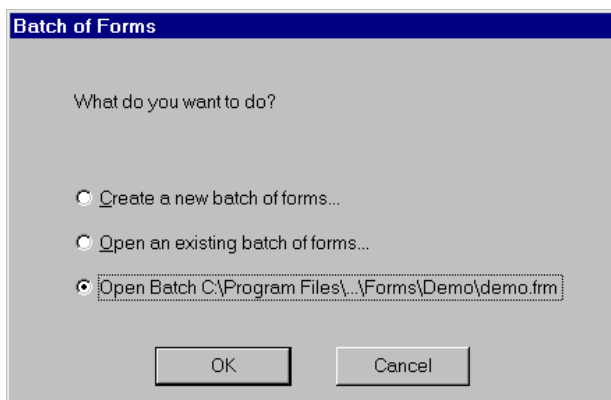


Figure 4. “Batch of forms” dialog.

4. Select the *Create a new batch of forms* item and click *OK*.
5. In the *New Batch Name* (Figure 5) dialog box, specify the batch name and the path to the batch files; then click *Next*.

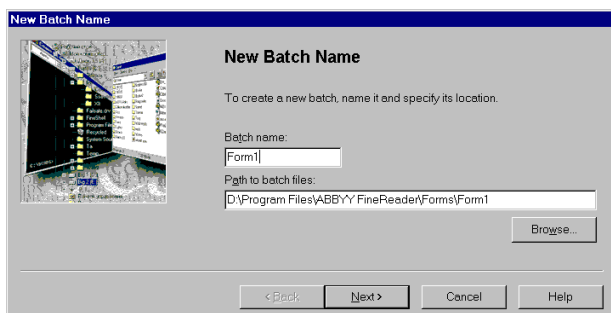


Figure 5. “New Batch Name” dialog.

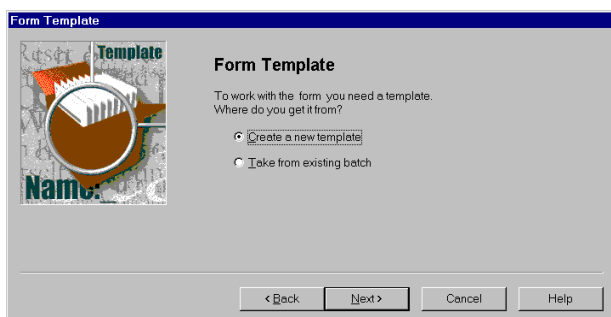


Figure 6. Form Template dialog.

In the *Form Template* (Figure 6) dialog, set the switch in the *Create a new template* position. Click *Next* and you will see the *Template Image* dialog (Figure 7).

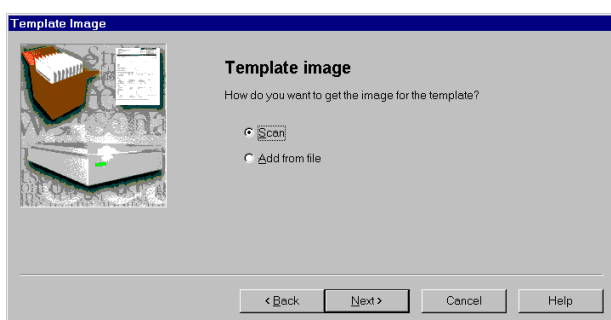


Figure 7. Specify the nature of the template image.

In the *Template Image* dialog (Figure 7), indicate the nature of the template image. Select *Scan*. Now we shall use the first of the forms which is not filled-in. Insert the page into the scanner and click *Next*.

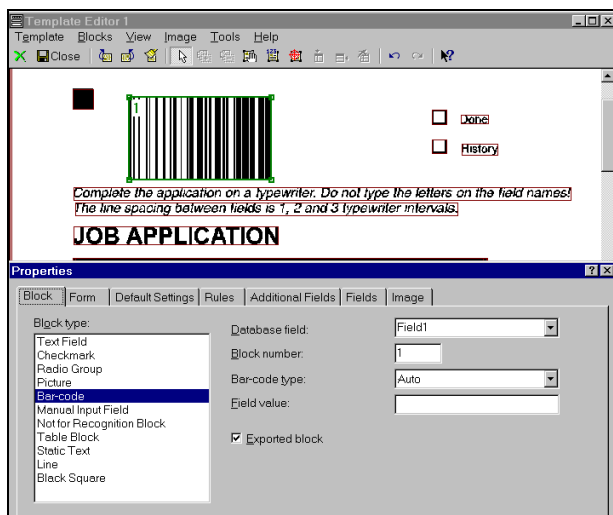


Figure 8. Form image in the “Template Editor” dialog.

After scanning you will see the scanned image of the original form in the *Template Editor* dialog (Figure 8). The *Properties* dialog will be also displayed.

Creating the form template

1. From the *Template* menu, select *Create Form Template Automatically*.
Black squares in the corners of the form will be marked as blocks of *Black Square* type. All the rest objects on the form will be marked as *Static Text*.

Attention! Do not delete static text and black squares, since they are used for correct template matching.

2. On the *Default Settings* tab of the *Properties* dialog (Figure 9, p. 19) change the following parameters: language – English, text type – typewriter, clean block – yes.

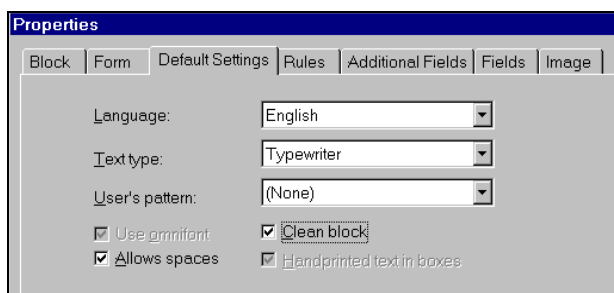


Figure 9. “Default Settings” tab of the “Properties” dialog.

- Now you need to “draw” text fields that will contain text to be recognized. One of the fields you need to recognize in the example is the “Last name” field. Place the mouse pointer on the image in the upper left corner of the “Last name” field. Click the mouse and drag to the right bottom corner until the whole field is enclosed. Release the mouse button. A block (a rectangle with a green frame) will appear on the image. This is the text field.

Note: Everything included in blocks with green frame will be recognized. For this reason, you should not enclose the name of the field and other explanatory lines in a block. In this case, do not include the “Last name” title in the block. The block must enclose only the part of the page that contains the value of the field (the filled-in part).

If you need to set the margins of the recognized area more precisely, size the block or move its frame with the mouse. If you make a mistake while marking blocks, you can delete the active block by pressing DEL.

- Now you need to specify the field in the database to which the recognition results of the current field should be exported. Enter “Lastname” in the *Database Field* box.

Note: If the database already exists, then select the necessary value in the *Database* field. If you haven’t created a database yet, then naming the database fields bear in mind the naming restrictions of the format you are planning to use for export, e.g., use of long names and additional characters. You will have no problems in any format if you use only Latin letters and give names not longer than 8 characters.

- Repeat these operations for all *text* fields of the form: “First Name”, “Month of Birth”, “Town”, “Street”, “House”, “Apartment”, “Series”, “Issued”, “Date”, giving each of them appropriate names in the data base.

Repeat these operations for all *digit* fields on the form: “Index”, “Zip code”, “Phone number”, “Day of Birth”, “Year of Birth”, “Date”, specifying appropriate fields in the database for them. In contrast to text fields, deselect the *Default Settings* checkbox and choose *Digits* in the *Language* list.

- Select “Male (M)” and “Female (F)” in two *check boxes* and then “draw” a block that will enclose both of them as one *radio group* “Sex”.

7. In the upper part of the template there are checkboxes (“squares”) “Done” and “History” that were automatically marked as static text. Now you need to change their type to *Checkboxes*. To do this, holding the SHIFT key, click these blocks one after another with the mouse. After that click the **right** mouse button on one of these blocks and from the local menu select *Block Type*, and then – *Checkbox*.
8. The electronic template of the form is now ready. Click *Close*.
The batch window will be displayed.
9. Working with a batch involves a number of sequential or parallel operations: scanning, recognition, editing and export of recognition results.

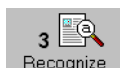


Scanning

Prepare the completed forms for scanning (in our example there are two completed forms) and click the *Scan* button on the toolbar.

Attention! All images in the batch must have the same resolution as the form template.

For each scanned form, a new icon will appear in the batch window, and a special mark will appear in the *Image* column. These images are only pictures of the forms and cannot be edited.



Recognition



After you have scanned all the forms, you can start recognizing them. Click the arrow to the right of the *Recognize* button and from the local menu select *Recognize All Pages*.

The program will start recognition. A special mark will appear in the *Text* column for each form which is recognized.

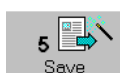
Editing

To view and edit (if necessary) the recognition results, double-click the icon of the form in the *Batch* window.

In the right part of the screen you will see the *Editor* window with the recognized form, and in the bottom part, the enlarged image of the form.

To move between batch pages use  and  buttons.

Export



To export the recognition results to a file, click the arrow to the right of the *Save* button and from the displayed menu select *Export to File...* Select the disk and folder to save recognition results and name the file. Then click the *Save* button.

THAT'S ALL YOU NEED TO DO! THE RECOGNIZED FORM IS IN THE TXT FILE.

Of course, the TXT format is not the only one. You can save recognition results in the DBF, CSV or XLS formats.

In FineReader Handprint, you can also export data via ODBC to a database, e.g., to MS Access.

Network processing

If you have several computers in the network, you can do all procedures described above at different computers at the same time. For details, see “Batch processing in the network”, p. 52.

Installation and Setup

Software and hardware requirements

What you will need to install FineReader 4.0:

- A computer with an Intel 486 processor or higher (Pentium 133 or higher is recommended).
- One of the following operating systems: Windows 95, (Pan-European version is recommended), Windows 98, Windows NT 4.0 (Service Pack 3).
- 16 Mb of RAM for Windows 95, 98; 32 Mb for Windows NT.
- 30 Mb of free space on the hard disk for minimal configuration and about 60 Mb for maximal configuration.
- A TWAIN-compatible scanner or analogous device.
- A mouse or other pointing device.
- A CD-drive.

Installing FineReader

FineReader takes you through installation with onscreen instructions at every step. For best results, do not run any other programs (e.g., MS Outlook, MS Word, etc.) during installation.

Attention! If you want to use user dictionaries and patterns from the previous versions of the program, do not deinstall it before you have installed the new version. Having installed the new version, you can use patterns and dictionaries of the previous version. For details see Appendix, “Using user dictionaries and patterns from FineReader 3.0”.

1. Insert the CD-ROM in the CD-drive.
2. Click *Start* on the Taskbar and choose *Settings/Control Panel*.
3. Double-click *Add/Remove Programs*.
4. Select the *Install/Uninstall* tab and click *Install...*
5. Follow the onscreen instructions.

Note: Items 2-4 are equal to running the install.exe.

If there are problems during installation

In rare cases problems can arise during installation because of incompatibility between different software components.

If the program displays an error message, see the Readme.hlp for recommendations helpful in most cases.

Starting FineReader

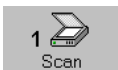
If you are planning to scan, make sure that your scanner is attached to your computer, turned on* and working, before you start FineReader. If you have not connected a scanner yet, read the User's Guide which comes with the scanner to connect it.

If you do not have a scanner, you can see how FineReader works on the demo.tif, which you will find in the c:\Program Files\ABBYY FineReader\Demo folder. For more information about the work with graphic files see "How do I input the text of a paper document to my computer?", p. 12.

To start FineReader:

- Click *Start* button on the Taskbar and choose *Programs/ABBYY FineReader/FineReader 4.0*.

Working with a scanner



Important! To connect a scanner correctly, read the user's manual of the scanner. Connecting the scanner, do not forget to install all software bundled (TWAIN driver and/or scanning program).

To start scanning, prepare everything for scanning and click *Scan*.

Your scanner should start working immediately, and in 20 seconds you will see a "photograph" of the scanned page on the screen.

Now you can go onto the section entitled "How do I input the text of a paper document to my computer?", p. 12.

If the scanner doesn't start working, you will see the scanner parameters dialog box.

Note: Different scanners have different interfaces. Scanner manager dialog, (a built-in TWAIN interface of scanner), is developed by the scanner manufacturer. That is why it is different for different scanners and not always friendly and intuitive.

* If your scanner has a separate power source, turn your scanner on **before** you turn your computer on.

Now check the scanning parameters. If you have never worked with a scanner before, remember that scanners have **THREE MAIN PARAMETERS**, which influence the quality of the scanned image. These are resolution, brightness and scanning mode (image type).

To set the scanning parameters correctly:

- Resolution – select 300 dpi.
Note: Some TWAIN-interfaces (e.g., HP PictureScan) do not allow to set OCR resolution other than 300 dpi.
- Brightness (can be also called threshold or pictured with the “sun” icon or black-&-white circle, etc.) – select middle value (50%).
- Scan mode – select gray (256 colors)*.

After setting parameters, click *Scan* (this button can be called in some other way, e.g., *Final*) to start your scanner.

If you use a flatbed scanner, operation will be accompanied by a sound and a moving light under the scanner cover.

If you use an edge-fed scanner, the sheet of paper will start to move, as with a fax.

If you use a hand-held scanner, you will need to move it across the sheet of paper yourself. Click the start-button and move the scanner across the page. To finish scanning, press any key on the keyboard.

After the scanning is over, in the *Image* window of FineReader you will see the “photograph” of the scanned page.

If you have any questions, read scanner’s user manual.

Checking the scanned image properties

You can check the properties of the scanned image. To do this, click the **right** mouse button on the image and from the displayed local menu select *Properties...*

If you have followed all recommendations of the given manual, it must have the following properties: image type – gray (see above), resolution – 300 dpi.

These values are the most common values for recognition.

If you haven’t bought a scanner yet...

If you are just going to buy a scanner, choose a TWAIN-compatible one. TWAIN is a standard protocol supported by the most scanner manufacturers and guarantees a normal work of scanners with FineReader.

* For all scanners except hand-held. For hand-held scanners – black-&-white (Line Art, OCR, Text)

Note: Unfortunately, with the most of scanners you can get satisfactory scanning results only when using *Show TWAIN-driver dialog*. When this option is switched off, some TWAIN-drivers may not allow to set brightness and/or paper size manually.

You can view the list of FineReader-compatible scanners in the readme.hlp file or on the web-page of ABBYY (www.abbyy.com).

If your scanner doesn't work with FineReader

If your scanner doesn't work with FineReader, try the following:

1. Get a new version of the driver from scanner distributor or via the Internet.
Note: If you do not know the address of the manufacturer of your scanner, address to the TWAIN organization committee: www.twain.org. Besides there exist independent TWAIN-drivers manufacturers for the most of popular models, e.g., CFM (www.cfm.de)

2. Go to web-page of ABBYY: <http://www.abbyy.com>. Perhaps you will find there the new config file for your scanner.

3. Write to technical support service of ABBYY: support@abbyy.com.

4. If you can't get a new version of the scanner driver, try the following "emergency" mode. Scan the necessary images with the scanning software, save them in the format supported in FineReader (TIFF, BMP, JPEG, PCX, DCX*) and open these images in FineReader.

Note. You can assemble a batch automatically. To do this, put images in the batch folder. The names of the images to be assembled to the batch must consist of the batch name and the 4-digit number. To update pages in the Batch window, press F5.

Where to go from here



After you have installed FineReader 4.0, and your scanner has started working, go to "Getting Started" chapter, where you will find instructions how to get the necessary result quickly.

You can learn to work with the program in the interactive mode, running Scan&Read Wizard. The Wizard will help you to learn the basics of scanning and recognition. Read the messages and follow the Wizard's instructions. Good luck!

* The list of supported formats is given in Appendix.

FineReader 4.0 – an Overview

FineReader is an omnifont OCR (Optical Character Recognition) system. This means that without preliminary training it can deal with texts of practically any quality, printed with any font.

FineReader is extremely tolerant of printing defects. This is a result of a special technology called “fontain image transformation”.

This chapter gives an overview of the features of FineReader 4.0 Standard, Professional and Handprint.

FineReader 4.0 Standard features

- FineReader allows you to input texts 5-10 times faster than a professional typist and with many fewer mistakes.
- To input an image in the computer, insert a document in the scanner and click *Scan&Read*. In 30-90 seconds you will see the recognized text in the *Editor* window.
- The Scan&Read Wizard is the way to get the results quickly, without going into program details.
- FineReader allows to recognize and edit recognized text on one and the same computer simultaneously.
- Support of drag-&-drop.
- Support of MMX.
- Integration with Lingvo 4.5 and greater.

Scanning and marking of blocks

- Work with all scanners that support the TWAIN protocol.
- Automatic brightness setting – for getting the best results when scanning light and dark parts of the page.
- Automatic and manual segmentation of tables.
- Scanning and saving colored pictures.

Work with images

- Automatic detection of orientation of the page under recognition and rotation of the page into normal position.
- Cleaning of images.

- Rotation of images to 90, 180 and 270 grades.
- Automatic inversion of dark blocks with light text.

Recognition

- Recognition of Russian, English, French, German, Spanish, Italian, Swedish and other texts, including texts where any combinations of the supported languages occur. The list of supported languages is given in Appendix (p. 57).
- Recognition of multi-column text with pictures and tables; saving layout of recognized page.
- Recognition of blocks with light text on the dark background.
- Recognition of color images.
- The program can be trained to recognize new characters.

Editing and export

- Built-in text editor allows you to change font and size, and the formatting of text and paragraphs, etc.
- The built-in spell-checking system allows you to add new words to the system dictionary. For Bulgarian, Czech, Danish, Dutch (Standard, Belgian), English, Estonian, Finnish, French, German, Greek, Italian, Norwegian (Bokmal, Nynorsk), Polish, Portuguese (Standard, Brazilian), Russian, Spanish, Swedish, Tartar*, Turkish, Ukrainian.
- Automatic creation of different paragraph styles for text with different shape and size of font.
- Work with Internet – saving recognition results in HTML format.
- Recognition results can be sent to another application (e.g., MS Word 6.0, MS Word 95, MS Word 97, MS Excel 6.0, MS Excel 95, MS Excel 97, Word Pro 97, WordPerfect 7.0, WordPerfect 8.0, Stylus 3.0, PROMT 98) without saving them to the disk.

FineReader 4.0 Professional features

- All features of FineReader 4.0 Standard (see above).
- Network processing of documents to increase considerably the speed of processing large documents (when there are licenses for several working stations).

* Tartar is in the special delivery.

- Recognition of forms using a template: bulk input of standardized information into information systems.
- Matching of template using reference points.
- Template designer, which allows recognition of different forms.
- Recognition of texts in unsupported languages.
- Recognition of bar-codes (Check Code 39, Check Interleaved 25, Code 128, Code 39, EAN 13, EAN 8, Interleaved 25).
- Automatic compensation for scanning skew when matching template.

FineReader 4.0 Handprint features

- All features of FineReader 4.0 Professional (see above).
- Recognition of block hand-printed characters: for Russian, English, German and Ukrainian.
- Automatic template matching when recognizing non-sorted pile of forms in a batch.
- Export of images into databases.
- Automatic check of recognition results with regular expressions, validation rules and checks against database.
- Export to databases via ODBC.

Chapter 4

Working with FineReader 4.0

This chapter tells about the main features of FineReader 4.0. For more detailed information and step-by-step instructions, see on-line help.

Main window

When the program is run, a new batch is open by default, into which scanning and recognition results are placed. Each scanned image is represented as a separate page in the batch. You can see the following working windows in the Main window: *Batch*, *Image*, *Text* and *Zoom* (Figure 10).

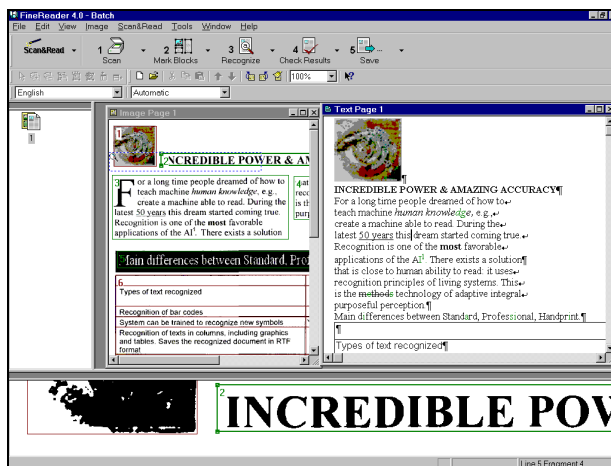


Figure 10. Main window of FineReader 4.0.

In the upper part of the window you can see toolbars. To hide or display the toolbars, use *View > Toolbars* menu or local menu. To open the local menu (Figure 11, p. 30), click the **right** mouse button on one of the toolbars. The toolbars that can be seen on the screen are marked with the checkmark. The Edit toolbar is switched off by default (it is not displayed on the screen). Select the toolbar you want to hide or display.

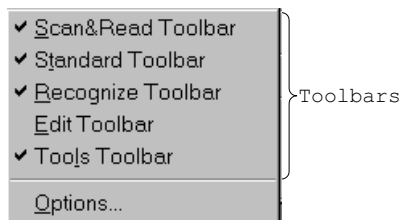


Figure 11. Local menu with the list of toolbars. The checked toolbars are those that are displayed on the program screen. The “Edit” toolbar is switched off.

Main toolbar – Scan&Read

The Scan&Read toolbar (Figure 12) contains buttons that carry out the main operations of the program. The numbers on the buttons show the order of operations to get an electronic version of the paper document: 1 – Scanning, 2 – Marking of blocks, 3 – Recognition, 4 – Checking results and 5 – Export.

The leftmost button *Scan/Open&Read (Wizard)* can carry out scanning, marking of blocks and recognition (in the Scan&Read mode – for paper documents) or marking of blocks and recognition (in the Open&Read mode – for electronic images). This button can also work in the Scan&Read Wizard mode, that will teach you to work with the OCR program.

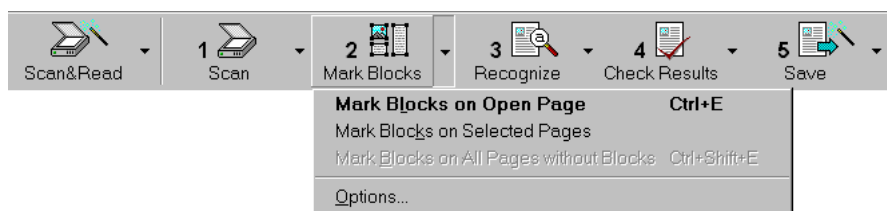


Figure 12. “Scan&Read” toolbar.

The mode of *Mark Blocks* and *Recognize* buttons depends on what window is active and also whether the *Batch* window has some pages selected.

If the *Image* window is active, the buttons process the open page.

If there are no images open and at least one page is selected in the *Batch* window, the buttons process selected images.

Note: The button mode different from the default mode can be set manually. Click the arrow to the right of the button and you will see the menu. On the picture (Figure 12) you can see the open menu for the 2 – *Mark Blocks* button. One of the menu items is formatted in bold. This

command will be run when you click the button. When you select another menu item, the corresponding operation is carried out.

Standard toolbar

The Standard toolbar (Figure 13) has the following buttons: five standard buttons (new, open, cut, copy, paste), buttons to move up and down in the batch (to the next and previous pages), buttons to rotate and clean images and a *Help-mode* button.

Clicking the button operates on the open image or images selected in the *Batch* window. When you click the *Help Mode* button, the mouse pointer works in the following way: click on an object (button or menu item) and you get brief help (the shape of the mouse pointer in this mode is an arrow with the question mark).

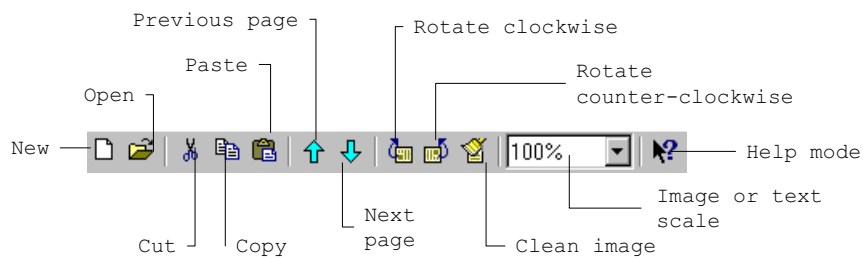


Figure 13. "Standard" toolbar.

Structure of the batch

When the program is run, a new batch is open by default. A batch is a kind of folder where scanned and recognized pages are assembled. You can save separate pages of the batch or the whole batch. In the *Batch* window you can see the list of pages of the current batch. To view a page, double-click its icon or its number. You will see files that the page has: text and/or image in the *Text* and/or *Image* windows, respectively.

Pages in the batch are selected in the same way as files in Explorer: with the mouse click (or with keys). For details see "Selecting pages", p. 33.

How the Batch window looks

By default the batch window is docked to the left edge of the Main window and pages are showed with large icons (Figure 14).

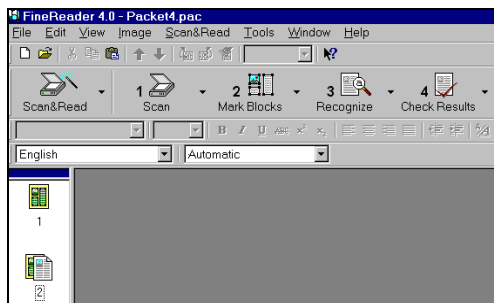


Figure 14. Batch window in the docking view with large icons for pages (default view).

If you want to move the *Batch* window, you can undock it (click the **right** mouse button inside the window and from the local menu, deselect *Docking view*).

The *Batch* window can also display information about the operations carried out for this or that page: whether it was recognized, edited, exported, whether there was an error during its recognition, etc. To get information about the batch pages, there is a special view with parameters (Figure 15). To get the necessary view, from the local menu, select *Display page parameters*.

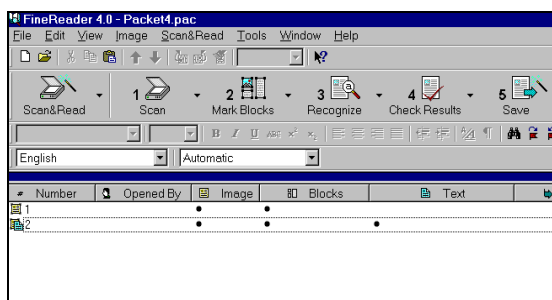


Figure 15. Batch window. The view with parameters. The components of the pages are marked with bullets (image, blocks, text, etc.).

Conventional Signs for Pages

A page in a batch can have:



1

A *graphic* file (scanned and saved image). This type of page is indicated by a yellow icon (if the view without parameters is selected).



2

A *text* file (recognized text). This type of page is indicated by a white (or blue) icon. A page can be exclusively a text file if the image of the page was deleted after recognition (if the view without parameters is selected).



3

Both *graphic* and *text* files. This type of page is indicated by two overlapping icons – yellow and white (if the view without parameters is selected).

Numbering of batch pages

One batch may contain up to 9999 pages. You can see the page number near the conventional sign for the page in the *Batch* window (see above) and in the heading of the window where the page files are opened, for example, “Image – 5”, “Text – 5”.

Working with batch pages

Selecting pages

The batch supports multiple selection of pages. This means that you can select many consecutive or non-consecutive pages at the same time.

To select a number of consecutive pages, click the mouse on the first page. Holding the SHIFT key, click the last page of the selection.

To select a number of non-consecutive pages, click them with the mouse holding the CTRL key.

To select all pages of the batch, activate the Batch window and from the *Edit* menu choose *Select All...*

Note: 1. What *Select All* command does depends on what window is active – *Batch*, *Image* or *Text*: this command selects pages in the active batch, all blocks on the image, all text in the text editor.

2. It is more convenient to select several pages when the *Batch* window is displayed with parameters (local menu, *Display Page Properties* item).

Working with images

The working mechanism of the *Mark Blocks* and *Recognize* buttons is described in the “Main toolbar – Scan&Read” section, p. 30.

As for rotation, inversion, cleaning, these operations are carried out for an **active window**. If the *Batch* window is active, the command is carried out for the pages selected in the window.

Working with text

Operations with the recognition results (search, spell-check, etc.) are carried out for the active page of the batch. If none of the pages is open, the operation is carried out for the first page of the selection. Then the program prompts to continue.

For details see on-line help.

Scanning

Recognition accuracy depends to a great extent on the quality of the scanned image. This section will help you to distinguish between “good” and “bad” texts and to learn how to set scanner options to get the most of the system.

Good and bad texts

“Good” Texts

Good quality texts have very few torn, stuck together, smudged or distorted characters. A human reader doesn’t have to make a special visual effort to read such texts.

Examples: the Guide you are now reading; texts, printed on a laser printer; nearly all modern magazines; nearly all colored print production.

“Bad” Texts

“Bad” texts are difficult to read because of low contrast, i.e. insufficient difference between black and white areas. Such texts may be either too dark or too light.

Examples: text from a dot-matrix printer in draft mode, with a worn-out ribbon; a typewriter carbon copy; text from a typewriter with a worn-out ribbon; any texts with characters which are distorted, torn, or stuck together (Figure 16, p. 35).


Letters stuck together

Torn letters

Distorted and smudged letters

Figure 16. Samples of poor quality text. To improve the recognition quality of the text, try to set scanning brightness correctly. Increase brightness (make the image lighter) for distorted, smudged and stuck together letters, and decrease it (make the image darker) for torn letters.

Scanning for a good image

When you run FineReader for the first time, the default scanning parameters are set automatically. They are gray (256 colors*) image type, medium level of brightness and 300 dpi resolution.

Sometimes you may need to change these parameters. e.g., if you want to save color pictures in the output text, then choose color scanning mode. To scan texts printed with small fonts (8-th point and smaller), set 400 to 600 dpi. In these cases the default parameters are not suitable for you and you have to set them manually.


To set scanning parameters:

1. From the *Tools* menu, select *Scanner Parameters...*
2. In the displayed dialog set the necessary options.
Note: If on the *Scanning* tab of the *Options* dialog (*Tools>Options...*) you have *Show TWAIN-driver dialog* selected, then you will be able to use the TWAIN dialog of your scanner to set scanning parameters. This dialog and the options must be described in the scanner documentation. For some models of scanners the *Show TWAIN-drive dialog...* is off by default. Anyway, it is you who decide whether to display the TWAIN-driver dialog. Each scanning mode (with TWAIN-driver dialog and without it) has its own advantages. Thus, for instance, if you check the *Show TWAIN-driver dialog...*, box, as a rule you are able to preview the scanned image, and set scanning height and width, brightness, contrast. When you do not use the TWAIN-driver dialog, you can set scanning options from FineReader's dialog. When you scan

* Actually, 16 grades is enough, but not all scanner drivers support this feature.

without TWAIN you can save scanning options for the batch, scan in cycle with the set pause, etc.

Cleaning the Image

If you can't get rid of "garbage" or a dirty background on the image, in spite of following the scanning instructions, you can clean the image. To do this click the  button. But do not use this option excessively, since as a result of cleaning of the image, dots, commas and thin elements of letters may disappear that will inevitably lead to poor recognition quality.

Scanning multi-page documents

To scan a large number of pages, it is convenient to use the automatic document feeder (ADF). Of course it is convenient when you have separate (not bounded) pages. If you want to scan a book using an ADF, then you would have to unbound it.

To make the scanner take pages from the ADF bed, in the *Scanner Parameters* dialog (*Tools>Scanner Parameters...*) select the *Use Automatic Document Feeder* checkbox. Or, if you work with TWAIN dialog, select the *MultiPage* mode.

If by this or that reason you can't use an ADF mechanism, you can scan in the following way: after a page is scanned, the scanner makes a pause (you specify its length in options), during which you insert the next page in the scanner. Then the scanning continues automatically.

You only need to set the pause length. In the *Scanner Parameters* dialog (*Tools>Scanner Parameters...*) select the *Pause Between Pages* checkbox. Then enter the necessary value (in seconds). This is the time that will pass between processing of two pages.

Numbering pages

When you start scanning, the system prompts you to specify the numbering mode of the scanned pages (Figure 17, p. 36).

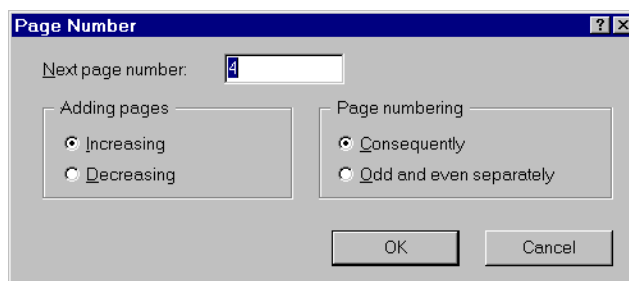



Figure 17. Choose the numbering mode of scanned pages.

In the *Page Number* dialog enter the number of the first scanned page. The pages can be numbered in an ascending or descending order. They can also be consecutive or non-consecutive (only even or only odd) numbers. If, for instance, you are scanning a pile of two-sided pages (the pages where the text is printed on both sides) sorted by number using an ADF mechanism, we advise you to scan all pages first from one side, and then from the other side. In this case you should select only odd- or even-numbering. Whether to select ascending or descending order depends on how you place the pile in the ADF bed – starting from larger or smaller numbers.

Adding images to the batch

1. To add image files to the batch, click .
2. In the *Open* dialog, select one or more images that will be added to the current batch.

Note: In this dialog you can simultaneously select several files. Hold the SHIFT key – to select a number of consecutive files, or CTRL – to select non-consecutive files.

You may move the files to the batch when opening them (in the *Open* dialog check the *Move files to batch* checkbox).

What happens with color or gray image when it is opened in FineReader

About color and gray images

When FineReader opens color and gray images, it creates a black-&-white copy that is recognized. That is why when you edit the recognized text of a color or gray page, in the Zoom window you can see its black-&-white copy.

How to save black-&-white image instead of gray or colored image

To save disk space, you can save color or gray images as black-&-white. To do this, check *Store only black-&-white images in the batch* (*Tools>Options...>Scanning* tab). Then when loading or adding color or gray image to the batch FineReader will save it in black-&-white.

Incorrect resolution message

Sometimes, when loading the image whose resolution is less than 100 dpi or greater than 800 dpi, the program will suggest you to change the resolution to a one more appropriate for recognition.

These are the reasons why such images occur:

- There are image formats (e.g., BMP), whose resolution can be read differently.
- Non-standard image format.
- Incorrect scanning options.

- For the majority of hand-held scanners the real scanning resolution for gray and color images is not 300, 400 dpi as specified, but much less (75-100 dpi).

Depending on the origin of the image, you may change image resolution or leave it unchanged.

Bear in mind that incorrect image resolution may lead to the following:

- The program will not be able to mark blocks on the image.
- The program will detect the font size incorrectly.

Page analysis (marking of blocks)



Before the recognition, the program must “know” what parts of the image should be recognized. For this, the program analyzes the image and marks blocks as text, pictures and tables. A page can be analyzed both automatically and manually. FineReader can successfully analyze pages with compound text layout. To analyze an image, click the *Mark Blocks* button on the *Scan&Read* toolbar. To learn how this button works, see “Main toolbar – Scan&Read”, p. 30.

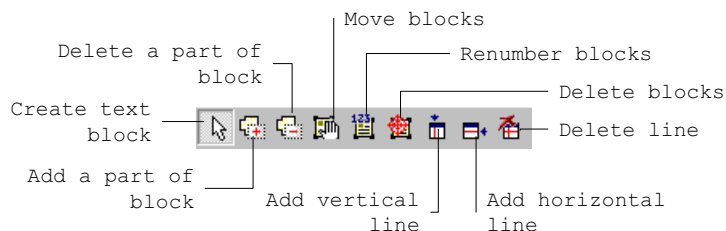



Figure 18. Tools toolbar.

To edit results of automatic page analysis, use the necessary tools (Figure 18, p. 38).

To mark out and edit blocks manually

To mark out a block, select the  tool (it is selected by default) and click in the upper left corner of the block you want to mark out. Drag diagonally until the frame encloses the necessary part of the image. Release the mouse button. The selected part of the image will be enclosed in the frame. It is a text block by default, i.e. it will be recognized.

According to the image enclosed, a block can be of the following type: picture, table, bar-code* or text not for recognition.

To change the block type, click the block with the **right** mouse button and from the displayed menu select *Block Type*, and then the necessary type.

To change block's size, place the mouse pointer on the block's frame, until it takes the shape of the two-headed arrow; then click on the block frame and drag.

Marking of blocks on the part of a page automatically

To mark blocks on a part of a page, select it with a mouse (as when selecting a new block), holding the CTRL key. The selected part will be analyzed automatically.

You can also mark the block with the mouse in a usual way and then select *Analyze Block* from the local menu.

Specifying table structure

When the system marks blocks on the page, it automatically finds any tables and analyzes them (i.e. marks out cells). For accurate recognition of a large number of tables of a single type, you should set their specific features:

You can specify the following:

- Whether the table is “regular” or not.
- Whether the table is linear or not.
- Whether division into cells coincide with black lines in the original image.

Table B (see below) is “regular”. The black lines in such a table cross the **whole** table (in contrast to table A – an “irregular” one).

Table A (see below) is linear, since it contains cells with *one line* of text each.

Table B is non-linear, since it contains cells with more than one line of text.

Temperature	
Celsius	Kelvin
-273	0
100	373

Table A. Linear, irregular

* Only in FineReader 4.0 Professional and Handprint.

	Celsius
Boiling point of water	100
Freezing point of water	0

Table B. Non-linear, regular.

Linear tables may have no black lines – vertical or horizontal (Table C).

Kilometers	Miles
1	0.62
5	3.1
10	6.2

Table C. Linear table without black lines.

To specify the structure type of the table:

1. From the *Tools* menu select *Options...*
2. On the *Page Analysis* tab of the *Options* dialog select the necessary checkboxes in the *Tables* group.

Important:

1. The table structure should be specified in system options before recognition.
 2. Incorrect specification of the table structure can affect segmentation quality.
 3. If you want to perform a bulk input of tables of different structure, select no items in the *Tables* group of the *Page Analysis* tab (*Options* dialog box).
-

Editing table blocks

What tables should be analyzed manually

If a table does not have black horizontal lines, has more than one line of text per cell (i.e. is not “linear”) and has equal intervals between lines (Figure 19, p. 41) it is better to analyze such a table manually.

You should enclose such a table in a separate block and mark it as a *Table*; then add vertical and horizontal lines with the help of buttons on the *Tools* toolbar (Figure 18, p. 38).

1.	Jim Johnson	1990.
2.	Mary Lay	1996.
3.	Boris Namin	1997.

Figure 19. A table requiring manual analysis. The table is non-linear and has no horizontal lines.

You can also analyze the table block automatically (click the **right** mouse button on the block with a table and from the displayed menu select *Analyze Table*), and then edit the result manually.

To analyze a table manually:

1. Activate the *Image* window, clicking it with the mouse.
2. If the table in the window is too small, increase the scale. To do this, click the **right** mouse button in the *Image* window and from the displayed menu select *Scale* and then the necessary item.
3. If the table is not marked out, mark it with the mouse (see “To mark out and edit blocks manually”, p. 38).
4. Then use the following tools:



Add a vertical line




Add a horizontal line



Delete a line

Note: 1. To delete a line in the table, you can also move it until it coincides with the table frame.

2. To change the direction of the line you are adding to the table (from vertical to horizontal direction and vice versa), press the SHIFT key.

5. When adding or deleting of lines is over, click  or press ESC to return the mouse pointer to the normal mode.
6. You can also merge or divide table cells (*Edit>Merge table cells* and *Divide table cells*, respectively).

Note: To select several cells, use the mouse (or right-left arrow) and the SHIFT key.

Recognition

The task of recognition is to transform the input (scanned) image into text. To put it another way, to replace the image of each input character with its computer code.

Before you start recognition, make sure you have set appropriate recognition parameters on the Recognition toolbar (Figure 20): language of recognition and text type.

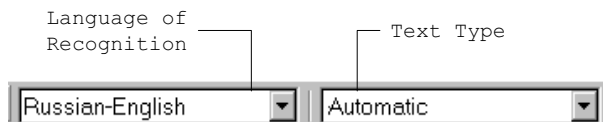


Figure 20. Recognition toolbar.

Language of recognition

- To recognize English, Spanish, Italian, German, Russian, English-Russian, Ukrainian, French, Swedish, Danish and Dutch texts, Polish, Finnish and Norwegian texts and also texts consisting of Arabian digits, select the language in the list on the Recognition toolbar.

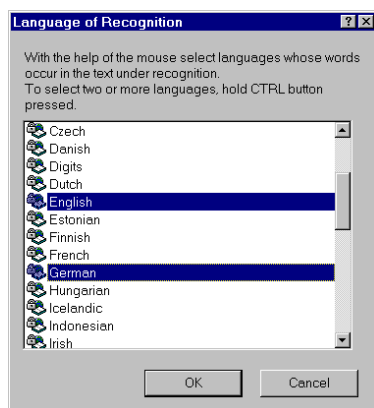


Figure 21. "Language of Recognition" dialog. Selecting languages for recognition of English-German texts.

- To recognize other languages and language combinations, select the *Other...* value and go on with the next item.

You will see the *Language of recognition* dialog (Figure 21), where you can select several languages, whose words can occur in your text.

After you have clicked *OK* in this dialog you will see the combination of the languages you have chosen on the Recognition toolbar (Figure 22).

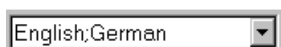


Figure 22. Recognition language list. Combination of languages for recognition of English-German texts.

Text type

Texts printed on a matrix printer in draft mode or on a typewriter have specific features (see pictures below) in comparison with the standard typeset characters. Symbols printed on a matrix printer consist of separate dots (Figure 24, p. 43). Typewritten symbols (Figure 25, p. 43), have almost identical width.

For the majority of texts, text type is detected automatically: the *Automatic* line is selected in the *Text type* list (Figure 23, p. 43). As for typewritten and matrix printer texts, to increase the recognition quality of such texts, select a special value in the Text Type list – *Typewriter* or *Matrix Printer*, respectively.



Figure 23. “Automatic” line selected in the “Text type” list.

hardware

Figure 24. Fragment of a page, printed on a matrix printer in draft mode. You can see that the letters consist of separate dots.

direction

Figure 25. Fragment of a typewritten page.

Saving page layout and document formatting

Before recognition you should specify how you want to save the recognition results: i.e. whether to save font formatting, text and picture layout on the page. Options of text formatting and page layout are specified on the *Formatting* tab of the *Options* dialog (*Tools>Options...*).

- If you need only text and do not worry about its layout or formatting (e.g., you want to insert it in another text), then select the *Remove formatting* option.
- If you would like to save line breaks and first line indents, select *Use spaces to show formatting*.
- If you are not interested in line indents but would like to save font formatting, select *Save letters shape and font*.
- If you want to save page layout and font formatting completely, select *Save formatting with frames*. This option will allow you to get a result closest to the original.
- But frames (look above) can complicate editing. That is why if you are planning to edit the result in your text editor, select the saving mode that is most convenient for editing *Save letters shape, font and columns*. Frames will be mostly used for pictures.

Saving pictures in the recognized text

To save pictures in the recognized text, on the *Formatting* tab of the *Options* dialog (*Tools>Options...*) select the *Save Pictures* checkboxes.

Note: You can also save pictures in separate files. To do this, activate the picture block on the image and from the *File* menu select *Save Image Copy*. In the displayed dialog select *Save active block only*.

Running recognition



To start recognition, click the *Recognize* button on the Scan&Read toolbar.


If there is an image open, the default operation of the button is recognition of the open image. If there are one or more pages selected in the *Batch* window, the program starts recognizing the selected pages.

You can change the button mode. To do this, click the arrow to the right of the button and from the displayed menu, select the necessary item.

Note: During recognition the system displays a dialog box, which warns you that certain parameters are set incorrectly. The messages are in the form: “Brightness too low (or too high)”, “Incorrect Text type”, etc. These messages help you to check parameters, but you can ignore them or not display them if you wish (*Tools>Options...>Recognition>Show tips during recognition*).

Recognition in the background mode

FineReader allows you to run recognition and edit recognized pages at one and the same time, that considerably speeds up the processing of documents on one and the same computer.

Start recognition in the background mode (*Scan&Read>Recognize in background mode*). In the Status bar you will see the  indicator. If page parameters are displayed in the batch (local menu, *Display Page Properties* item), then you will see the *Background recognition...* line near the page under recognition. You can also see the bullets that appear opposite the processed pages in the *Blocks* and then – in the *Text* columns.

While the program is recognizing, you can open and edit the recognized pages.

Checking and editing results

Edit toolbar (Figure 26, p. 45) allows you to edit recognized text.

The Edit toolbar is off by default. To display it on the screen, click the **right** mouse button on one of the toolbars and from the local menu select *Edit*.

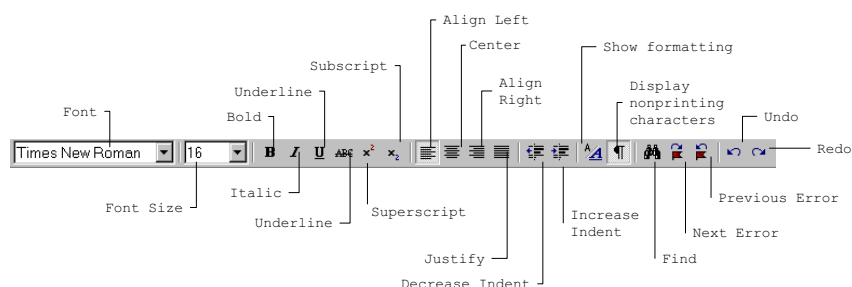


Figure 26. "Edit" toolbar.

Checking recognition results

One of the useful features of FineReader's text editor is the in-built spell-checking system for texts in the following languages and their combinations: Bulgarian, Czech, Danish, Dutch (Standard, Belgian), English, Estonian, Finnish, French, German, Greek, Italian, Norwegian (Bokmal, Nynorsk), Polish, Portuguese (Standard, Brazilian), Russian, Spanish, Swedish, Tartar*, Turkish, Ukrainian.

The original text may contain spelling errors and misprints that are transferred in the recognized text. Besides original text errors, the recognized text may contain indefinitely recognized and unrecognized words (words containing indefinitely recognized and unrecognized characters). To make the spell-checker stop on such words, check the corresponding option (*Tools>Options...>Results check* tab).

* Tartar is in the special delivery.

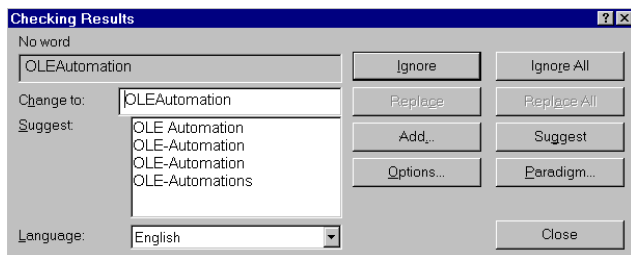
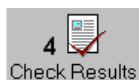




Figure 27. "Checking results" dialog.




To check recognition results:

1. Click the *Check Results* button.
The *Checking Results* dialog box (Figure 27, p. 46) displays a possible error and the *Zoom* window displays the original image.
2. Select one of these options for the word:
 - Click *Ignore* to allow the word to remain as it is.
 - Click *Ignore All* to ignore all instances of the word.
 - Click *Add..* to add the found word to the dictionary.
 - Click *Paradigm...* to view the paradigm (sum-total of all word forms) ¹ of the word selected in the *Suggest* list.
 - Click *Suggest...* to get replacement variants for the word edited in the *Replace With* box.
 - Click *Options...* to set checking options².
 - Click *Close* to close the dialog box.

Moving to errors

To check and edit recognition results you can use  and  buttons, to move to the next and previous words, respectively. You can also use hot keys: F4 and SHIFT+F4 respectively.

Viewing recognition results

By default the recognition results are displayed in the draft mode, i.e. all the text is displayed with the font of one size. To display the font with its real size, click .

¹ For Russian, English, German, French, Ukrainian, Spanish, Italian.

² To set spell-checking options, select the *Results check* tab of the *Options* dialog (*Tools> Options...*).

You can change the font size of the draft view (*Tools>Options>General>Font size in draft mode*).

Saving recognition results

You can save recognition results to a file, send them to an application (MS Word, MS Excel, etc.) without saving it on the disk, copy to Clipboard or send by e-mail. You can choose whether to export all recognized pages or only selected ones.



To export recognition results:

1. Click the arrow to the right of the 5-*Save* button and from the displayed menu select *Export Wizard...*
2. In the displayed dialog (Figure 28) select where to export recognition results. If you want to export only the pages selected in the *Batch* window, set the switch in the *Save only selected pages* position.
3. Click *Finish*.

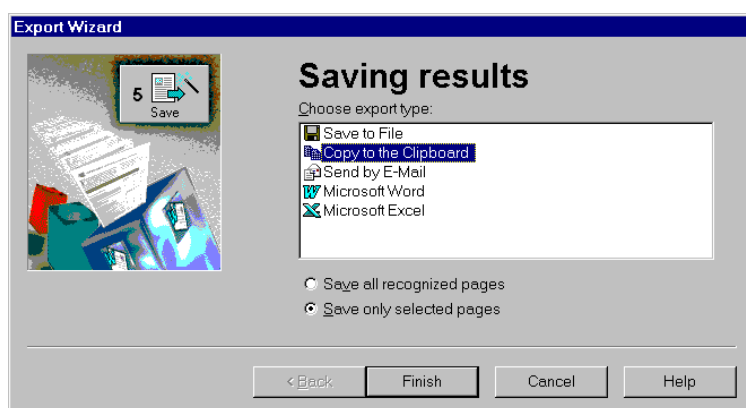


Figure 28. “Export” wizard.

Note: If when you were working with a new (unnamed) batch the work of the program was cancelled (e.g., the power was switched off), then next time you run FineReader it will open this very batch. You will lose only information about the page you were working with. The information about other pages will be recovered.

Saving batch for the further work

If you are planning to continue working with the batch in the next session, you can save it (*File>Save Batch...*). By default a special folder is created in the c:\Program Files\ABBYY FineReader\Packets folder for each batch. The title of the folder is the title of the batch. The following files are stored in the batch folder:

- Batch file (BatchName.pac).
- Image (BatchName_number.TIF) and/or text file (BatchName_number.FRF) for each page.
- File with blocks (BatchName_number.BOX) (only for pages that have an image file).
- Files with batch scanning options (BatchName.SCN).
- Batch options file (BatchName.opt).
- The Forms folder also has a language database file textlang.dat (for FineReader Professional and Handprint).

Learning new characters

FineReader can recognize texts of any quality, printed with any font. Good- and medium-quality texts, and standard fonts can be recognized without preliminary training. Poor-quality texts and unusual fonts can be recognized after special training.

To make the system recognize the whole text accurately, train it on a couple of sample pages. A pattern will be established, which the system can use to recognize the rest of the text.

The training is run during recognition in a special mode. The result of training is a pairing of the image of the symbol and its name, set up in the OCR memory. The sum-total of pairs, created during training, is called the “pattern”. This pattern is used for recognition of the rest of the text.

The user pattern can be used only to recognize text of the same size as the font on which it was trained.

How to train the system

To recognize low-quality texts or unusual fonts you should do the following:

1. Create a pattern (name it).
2. Set *Read&Learn* mode (check the corresponding item on the *Recognition* tab of the *Options* dialog).
3. When training the program to learn unusual fonts or fonts different from Cyrillic or Latin fonts (e.g., Greek, Irish), switch the omnifont off.
4. Recognize 1-2 pages with training.
Note: If you want to recognize texts in the language not supported in FineReader, print any text with the typesets (not bold and not italic) you are planning to train.
5. Edit the pattern (*Tools>Pattern Editor...*).
6. Cancel *Read&Learn* mode.

7. Start recognition of the rest of the text with the pattern attached.
Note: When you go onto recognition of texts printed in other fonts, do not forget to switch the pattern off (select *None* in the *Current User Pattern* list on the *Recognition* tab of the *Options* dialog box).

Further on we shall describe these operations in detail.

Creating and Attaching a Pattern

1. Choose *Options...* from the *Tools* menu.
2. On the *Recognition* tab of the *Options (Tools>Options)* dialog click the *Patterns...* button in the *Training* group.
3. In the *Patterns* dialog box, click *New...*
4. Name the pattern.
5. Before you start recognition with training, make sure that the created pattern is selected in the *Current User Pattern* box and the *Read&Learn* checkbox is selected.
Note: You need to switch the omnifont off only when training the program to learn unusual fonts or fonts different from Cyrillic or Latin (e.g., Greek, Irish).

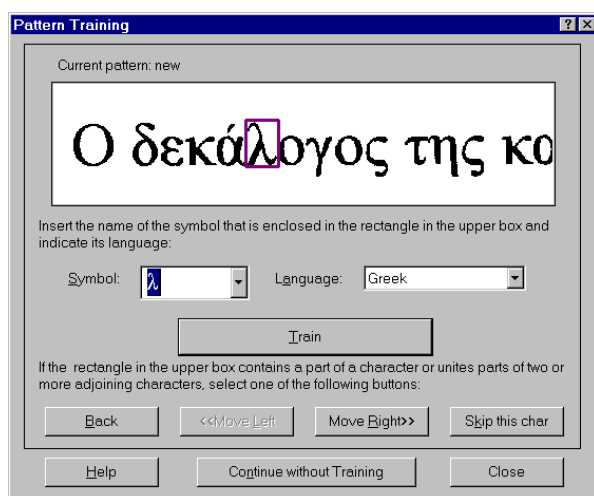
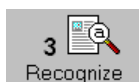


Figure 29. "Manual Training" dialog.



To start recognition with training:

1. Check whether the *Read&Learn* checkbox is selected on the *Recognition* tab of the *Options* dialog box (*Tools>Options...*).

2. Click the *Recognize* button.
The program will start recognition and display the image of an indefinitely recognized letter in the *Pattern Training* dialog box (Figure 29).
3. Name the letter and click *Train*.
Note: When training a pattern, watch that images of capital letters are named with capital letters and images of small letters – with small letters.
4. The enclosing rectangular in the upper part of the dialog must contain **one whole character**. If it contains a part of the letter or more than one character, use *Move right* and *Move left* buttons to move the rectangular so that it encloses one whole letter.
5. If you have made a mistake during training, you can click the *Back* button, and the enclosing rectangle will return back to the previous position, and the last trained pairing “image – character” will be deleted from the pattern.
Note: The *Back* button works inside one word.
6. You can edit the pattern after it is trained. See “Editing a Pattern”.
Note: When training the pattern, bear the following restrictions in mind: the recognition system doesn’t distinguish between some characters and connects their images with one and the same character. Thus, for instance, images of a straight (’), left (‘) and right (’) apostrophes are stored in the pattern as images of a straight apostrophe. That is why you will never see a left or right apostrophe in the recognized text, although it is these characters that you have entered during recognition with training.

To cancel Read&Learn mode:

- On the *Recognition* tab of the *Options* dialog box (*Tools>Options...*) deselect the *Read&Learn* checkbox.

Editing a Pattern

Before you run recognition using the new pattern you should check it and edit it if necessary. That will minimize recognition errors, made because of incorrect pattern learning by the system. Your pattern must contain only whole symbols or ligatures (combinations of two or three letters, which can’t be unstuck during training, and are therefore taught as one character).

To Edit a Pattern:

1. From the *Tools* menu select *Patterns...*
2. Select the pattern in the list and click *Edit...* to display the list of characters (Figure 30).
3. Delete the incorrect pairs and close the dialog box.

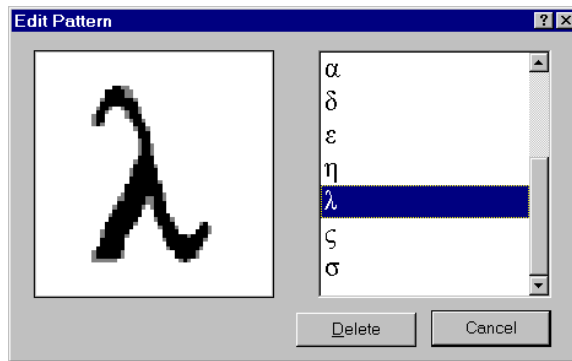


Figure 30. “Edit Pattern” dialog.

Learning Ligatures

Some groups of two or three characters in the text may stick together because of their form. If during training you can't move the enclosing rectangle so that it encloses one whole symbol and no parts of the adjacent symbols, you can teach this combination of characters as a single symbol. Such combinations of two or three symbols that can't be unstuck are referred to as ligatures. Examples are ff, ffi, ffl, etc. While training the system, you can select the necessary ligature from the *Symbol* list. If you can't find the necessary ligature in the list, create a new one. One pattern cannot contain more than 100 new symbols. But do not create too many new ligatures, because this can affect recognition quality.

Note: If you are teaching the program to recognize new characters that can't be entered from the keyboard, use a double-letter combination to name them or copy the necessary characters from Character Map. e.g., an accented letter a can be trained as #a. Answer *Yes*, when the program asks you whether to create a new ligature.

Languages in FineReader

To recognize texts in Russian, English, German, French, Ukrainian, Spanish, Italian and any other languages from the list of supported languages, select the correct value in the languages list on the Recognize toolbar. If you do not see the necessary language in the list, select the *Other...* value and create a new combination (for details see “Language of recognition”, p. 42). The list of supported languages can be found in Appendix, p. 57.

User languages and language groups (for FineReader 4.0 Professional and Handprint)

FineReader supports 53 languages and it is enough for the most users (list of supported languages can be found in Appendix, p. 57). But in some cases you may need to create new languages yourself.

When to create a new language:

- To attach a text file or regular expression for a dictionary. Mostly used for creation of new languages for recognition of form fields.
- To recognize texts in the languages not supported in the program.
- When you often use this or that language combination, e.g., English-Spanish.

You can attach a dictionary to a new language. It should be a text file in ANSI encoding. In FineReader Handprint you can also attach a database column as a dictionary.

To create a new language or language group, call *Language Editor* dialog (*Tools>Language Editor...*).

The sample of creating new language is given in Appendix, p. 55.

Batch processing in the network (for FineReader 4.0 Professional and Handprint)

You can process one batch on several computers **simultaneously**. This speeds up input of large documents considerably. Each computer involved in the processing of the batch must have a separate copy of the program installed.

Input of text to the computer involves scanning, page analysis, recognition, editing and export. When processing a single batch simultaneously on several computers, you can spread the task so that one operation or combination of operations can be performed on each computer. For example, one computer, equipped with a scanner and ADF mechanism, can be used for scanning, while another computer (or

several other computers) recognizes the scanned pages and/or edits and exports recognition results.

If batch recognition is run on several computers simultaneously, they divide the work between themselves automatically: as long as there are unrecognized pages in the batch, the computers will not stand idle.

How to work with a batch in the network

1. Create a new batch (unless it already exists) and save it in a folder that is read- and write-accessible by all computers involved in the document processing.
2. Close the batch to save its options.
3. Run FineReader and open the batch on the computers that will work with it.
4. Start scanning on the computer which is equipped with a scanner and ADF mechanism.
5. Start recognition in the *Read&Wait* mode on the computer meant for recognition (*Scan&Read>Recognize All Unrecognized Pages and Wait*) and then on the remaining computers meant for recognition.
6. Once some pages have been recognized, you can start editing them on any free computers, or on the computers where background recognition is running, without waiting for the remaining pages.
7. Recognized pages (all or the selected) can be exported to a file or sent to another application.

Note: To be able to monitor the processing in the batch, click the **right** mouse button in the batch window and from the displayed local menu select *Show page parameters*. This batch view will ease your work with the batch in the network (Figure 15, p. 32).

Read&Wait mode

In the *Read&Wait* mode, the recognition automatically continues when new unrecognized pages appear in the batch.

To run recognition in the Read&Wait mode:

- Click the arrow to the right of the *Scan&Read* button and from the displayed menu select *Recognize All Unrecognized Pages and Wait*.

Appendices

Improving recognition quality: tips and tricks

Main principles

If you have a text with many unrecognized characters, the reason may be that the source image is of a poor quality. You should set the correct brightness, resolution text type and rescan the image. If there is any garbage on the image, clean it.

A poorly recognized text can be due to incorrect recognition parameters, e.g., selection of an incorrect language or selecting too many languages. For instance, recognition errors in each line may be caused with recognition of an English text with English-Russian language.

Adding words to the dictionary

The system uses a dictionary during recognition. If you add frequently occurring terms and abbreviations to the dictionary, recognition accuracy is improved. You can add words to the speller dictionary (*Tools>View Dictionaries...*) or you can create a new language and attach the words as a text file (in ANSI encoding) or a database column to it.

For more information see “Supported languages”, p. 57 and on-line help.

Training

If you need to recognize large texts of very poor quality or unusual fonts, you can train the system on 2 or 3 sample pages, and it will then recognize the rest of the text accurately. The training is run in a special mode during recognition. The result of training is a user’s pattern, applied during recognition of the text. For details see “Learning new characters”, p. 48.

Creating new languages

To speed up recognition and improve its accuracy you can create new languages and attach dictionaries to them. You can use a text file in the ANSI encoding as a dictionary.

For example, to recognize a table column, in which a very limited range of words occur, you can create a new language and attach a dictionary, containing all the words which can occur in this column, to it.

Sample of recognition of the Old Russian language

To recognize Old Russian texts do the following:

1. Create a copy of the Russian language.
2. Set created language as the language of recognition.
3. Create a new (empty) pattern, attach it and start recognition with training.
4. Recognize 1 or 2 pages in Old Russian in the *Read&Learn* mode.
5. View and edit the pattern.
6. Switch the *Read&Learn* mode off (but do not switch the trained pattern off).
7. Run recognition.
8. In the recognized text replace ligatures containing “*” with the corresponding characters (see below).

Later, we shall explain how to create and attach a new language in greater detail.

Create a new language:

1. From the *Tools* menu select *Language Editor...*
2. In the displayed dialog, click *New...*
3. Set the switch in the *To edit the copy of the existing language* position.
4. In the appeared list select *Russian* and click *Next*.
5. Enter the name for the new language: OldRussian.
6. You will see Russian characters in the dialog. Now add the “*” character (or any other character that exists in the Cyrillic code page and you can enter from the keyboard). This character will be used to create ligatures. To make the system ignore the “*” character during the spell-check, mark it as ignored (click the button on the right of the *Ignored* box to select it from the table).

Create a new pattern:

1. From the *Tools* menu, select the *Pattern Editor...* item.
2. In the *Patterns* dialog click *New...*
3. In the *Create Pattern* dialog name the new pattern, e.g., OldRussian.

Attaching the pattern and setting the "Read&Learn" mode

1. On the *Recognition* tab of the *Options* dialog (*Tools>Options...*) in the *Training* group, from the *Current User Pattern* list select the pattern, that you have just created and now want to train.

2. Select the *Read&Learn* and *Use Omnifont*¹ checkboxes.

To specify recognition language:

1. In the *Recognition Language* list on the Recognition toolbar select the *Other...* value.
2. In the displayed dialog, select Russian and OldRussian².
Now start recognition.

Recognition with training

During recognition with training (*Read&Learn* mode), the system displays the *Pattern Training* dialog. In the upper part of the dialog box you can see a fragment of the text line under recognition, where the indefinitely recognized character is enclosed in rectangle (Figure 29, p. 49).

Enter the character from the keyboard and specify its language (Old Russian). If the “i” character is enclosed in the rectangular, then in the *Symbol* box enter the “*й” characters; if the “v” character is enclosed in the rectangular, enter the “*и” ligature; if the “Θ”, the “*φ” ligature; if the “ Ъ ” characters – the “*е” ligature.

When the training is over, the pattern will be created. Before you use it for recognition, view and edit it if necessary (*Tools>Pattern Editor...*) (Figure 30, p. 51).

After you have trained the pattern on one or two pages of the text, recognize the rest of the text, and attach the created and edited pattern. Then specify that you will recognize without training using the created pattern, and start recognition specifying the combination of Russian and OldRussian languages on the toolbar.

Replace in the editor

After the text is recognized, in the text editor that has special characters (e.g., Θ, υ and so on), carry out context replacement of ligatures with the characters, i.e. replace *φ with Θ, *и with υ and so on.

For administrator of FineReader Handprint and FineReader Bank

The administrator’s guide for FineReader Handprint and FineReader Bank is in the .pdf file located in the Guide folder on the CD-ROM from the FineReader distributive.

¹ Omnifont is deselected only in rare cases – to teach the program to recognize letters of some exotic language.

² The Russian language is attached for the use of the dictionary that improves recognition quality and allows to check spelling.

Image formats FineReader can load

BMP:	b/w; gray, color
PCX, DCX:	b/w; gray, color (16, 256 colors)
JPEG:	gray, color
TIFF:	b/w – unpacked, CCITT3, CCITT3FAX, CCITT4, Packbits; gray – unpacked, Packbits, JPEG; color – unpacked, Packbits, JPEG
PNG	b/w; gray, color

Supported languages

Afrikaans, Albanian, Basque, Breton, **Bulgarian***, Byelorussian, Catalan, Chechen, Crimean Tatar, Croatian, **Czech, Danish, Dutch (Standard, Belgian), English, Estonian**, Fijian, **Finnish, French, German, Greek**, Hawaiian, Hungarian, Icelandic, Indonesian, Irish, **Italian**, Kabardian Latin, Latvian, Lithuanian, Macedonian, Maori, Moldavian, **Norwegian (Bokmal, Nynorsk)**, Ossetic, **Polish, Portuguese (Standard, Brazilian)**, Rhaeto-Romanic, Romanian, **Russian**, Samoan, Serbian (Cyrillic alphabet), Slovak, Slovenian, **Spanish**, Swahili, **Swedish**, Tagalog, **Tartar****, **Turkish, Ukrainian**.

Using user dictionaries and patterns from FineReader 3.0

Using user dictionaries

After the new version is installed, convert the old dictionaries to the new format:

1. From the *Tools* menu, select *Options...*
2. On the *Results Check* tab of the *Options* dialog click *Add to Dictionary...*
3. In the displayed dialog specify the path to the FineReader folder (the folder where Fine32.exe of the old version is located).
In the upper part of the dialog you will see the list of languages with user dictionaries.
4. Select the necessary languages and click *Add*.

Using user patterns

After the new version is installed, copy pattern files (with .ptn extension) from the folder of the previous version of the program to the folder c:\Program Files\ABBYY FineReader.

* Spell checks in marked languages

** Tartar is in the special delivery

Using keys in FineReader

	To:	Press:
File menu	Create a new batch	CTRL+N
	Open a batch or an image, add image to the batch	CTRL+O
	Run the "Export" wizard	CTRL+D
	Save to file	ALT+SHIFT+S
	Send to MS Word	ALT+SHIFT+W
	Send to MS Excel	ALT+SHIFT+E
	Send to Word Pro	ALT+SHIFT+D
	Send to WordPerfect	ALT+SHIFT+P
	Send by e-mail	ALT+SHIFT+M
	Send to Clipboard	ALT+SHIFT+C
Edit menu	Undo an action	ALT+BKSP or CTRL+Z
	Redo an action	ALT+SHIFT+BKSP or CTRL+Y
	Cut the selection and place it on the Clipboard	CTRL+X
	Copy the selection to the Clipboard	CTRL+INS or CTRL+C
	Insert the Clipboard's contents in the text	CTRL+V or SHIFT+INS
	Delete active blocks, a selection, selected pages	DEL
	Delete pages...	ALT+DEL
	Select all text in the editor, or all pages in the batch, or all blocks on the current image	CTRL+A
	Make the block "Text"	CTRL+1
	Make the block "Table"	CTRL+2
	Make the block "Picture"	CTRL+3
	Merge table cells	CTRL+ENTER
	Split table cells	CTRL+SHIFT+ENTER
	Find the necessary fragment in the recognized text	ALT+F3 or CTRL+F
	Repeat the search	F3
	Find the necessary fragment in the recognized text and replace it with another fragment	CTRL+H
	Open the "Font" dialog	CTRL+SHIFT+F
	Open the "Formatting" dialog	ALT+SHIFT+F
	Open the dialog to set the language of the selection	CTRL+L
	Make the selection Bold	CTRL+B
	Make the selection Italic	CTRL+I
	Format the selection with a continuous underline	CTRL+U
View menu	Show the entire image	CTRL+SHIFT+1
	Scale the image according to its width	CTRL+SHIFT+2
	Scale the image according to its height	CTRL+SHIFT+3
	Zoom in	CTRL+ up arrow
	Zoom out	CTRL+ down arrow
	Open the next page	CTRL+ Num +
	Open the previous page	CTRL+ Num -
	Open the page with number...	CTRL+G
	Update the page list	F5
	View properties of the active image (block)	ALT+ENTER
Image menu	Select a tool to create a text block	ALT+1
	Select a tool to add a part of block	ALT+2
	Select a tool to remove a part of block	ALT+3
	Select a tool to move blocks	ALT+4

	To:	Press:
Scan&Read menu	Select a tool to renumber blocks	ALT+5
	Select a tool to delete blocks	ALT+6
	Select a tool to add vertical lines to a table block	ALT+SHIFT+1
	Select a tool to add horizontal lines to a table block	ALT+SHIFT+2
	Select a tool to delete lines from the table block	ALT+SHIFT+3
	Run scanning with recognition	F9
	Run scanning and recognition of multiple pages	SHIFT+F9
	Open and recognize the image	ALT+SHIFT+O
	Run Scan&Read Wizard	CTRL+J
	Run scanning	CTRL+K
	Run scanning of multiple pages	CTRL+SHIFT+K
	Stop scanning	ALT+SHIFT+K
	Mark blocks on open page	CTRL+E
	Mark blocks on all pages without blocks	CTRL+SHIFT+E
	Recognize open page	CTRL+R
Tools menu	Recognize all unrecognized pages	CTRL+SHIFT+R
	Recognize all unrecognized pages in background mode	ALT+SHIFT+R
	Check results	F7
	Move to next indefinitely recognized word	F4
	Move to previous indefinitely recognized word	SHIFT+F4
	Discard error marks	CTRL+Q
	View dictionaries	CTRL+SHIFT+D
	Translate selected word or word combination	CTRL+SHIFT+T
	Open the "Language Editor" dialog	CTRL+SHIFT+L
	Open the "Pattern editor" dialog	CTRL+SHIFT+A
	Open the "Scanner Parameters" dialog	CTRL+SHIFT+S
	Open the "Options" dialog	CTRL+SHIFT+O
	Arrange windows	CTRL+W
	Get context help to selected interface object (menu or dialog item)	SHIFT+F1
	Open the selected batch page	ENTER
Window menu	Activate the Batch window	ALT+0
	Activate the Image window	ALT+8
Help menu	Activate the Text window	ALT+9
	Move from one table cell to another one	ALT+ left arrow, right arrow, down arrow or up arrow
Other commands		



INCREDIBLE POWER & AMAZING ACCURACY

For a long time people dreamed of how to teach machine *human knowledge*, e.g., create a machine able to read. During the latest 50 years this dream started coming true. Recognition is one of the **most** favorable applications of the AI¹. There exists a solution

that is close to human ability to read: it uses recognition principles of living systems. This is the ~~methods~~ technology of adaptive integral purposeful perception.

Main differences between Standard, Professional, Handprint.

	Standard	Professional	Handprint
Types of text recognized	Printed		Printed, hand-printed
Recognition of bar codes		Yes	Yes
System can be trained to recognize new symbols	Yes	Yes	Yes
Recognition of texts in columns, including graphics and tables. Saves the recognized document in RTF format	Yes	Yes	Yes
Use with Internet: Saves the recognized document in HTML format	Yes	Yes	Yes
Languages Supported			
Built-in spell checker	Yes	Yes	Yes
Recognition of multilingual documents	Yes	Yes	Yes
Expandable to include new languages		Yes	Yes
Recognition of tables			
Recognition of tables, saving the result in RTF, CSV, XLS, DBF	Yes	Yes	Yes
Manual and automatic segmentation of tables	Yes	Yes	Yes
Post-editing of recognized tables	Yes	Yes	Yes
Recognition of forms			
Recognition of forms and saving the result in DBF		Yes	Yes
Design of form patterns		Yes	Yes
Automatic positioning of forms using reference points		Yes	Yes
Export to databases through ODBC 32			Yes
Automatic selection of form pattern			Yes
Batch processing of documents and advanced functions			
Distributed processing of documents over a network		Yes	Yes
Integration with other applications through API, OLE-Automation, Active X.	Available in SDK ²		

1 - AI - artificial intelligence

2 - SDK - software developer kit



- ☐ Done
☐ History

Complete the application on a typewriter. Do not type the letters on the field names!
The line spacing between fields is 1, 2 and 3 typewriter intervals.

JOB APPLICATION

1. Last Name											
First Name											
2. Date of Birth		Day	Month (in Words)		Year						
							M	F			
3. Sex (tick the appropriate square with "x")											
4. The address where you live now											
Post or Zip Code		Town/City									
Street											
House Number		Apartment		Area Code		Phone					
5. Telephone Number											
6. Passport											
Series		Number		Day		Month (in Words)		Year			
		N		Issued							
7. Application Date		Day	Month (in Words)		Year						
Signature											

Place
photo
here



- ☐ Done
☐ History

Complete the application on a typewriter. Do not type the letters on the field names!
The line spacing between fields is 1, 2 and 3 typewriter intervals.

JOB APPLICATION

1. Last Name	Galeev										
First Name	Valery										
2. Date of Birth	Day	27	Month (in Words)	May	Year	1960					
3. Sex (tick the appropriate square with "x")	M	<input checked="" type="checkbox"/>	F	<input type="checkbox"/>							
4. The address where you live now	Post or Zip Code	120931	Town/City	Moscow							
	Street	Green									
	House Number	120	Apartment	31	Area Code	7095	Phone	0087651			
5. Telephone Number											
6. Passport	Series	NSFII	Number	N1231	Issued	Day	12	Month (in Words)	March	Year	1990
7. Application Date	Day	27	Month (in Words)	January	Year	1996					
Signature											





☒ Done

☒ History

Complete the application on a typewriter. Do not type the letters on the field names!
The line spacing between fields is 1, 2 and 3 typewriter intervals.

JOB APPLICATION

1. Last Name	Savinova		
First Name	Olga		
2. Date of Birth	Day 4	Month (in Words) April	Year 1964
3. Sex (tick the appropriate square with 'x')	<input type="checkbox"/> M	<input checked="" type="checkbox"/> F	
4. The address where you live now			
Post or Zip Code	Town/City		
14097	Moscow		
Street			
High			
House Number	Apartment	Area Code	Phone
67	51	7095	0087657
5. Telephone Number			
6. Passport			
Series	Number	Day	Month (in Words)
BBCAI	N 70098	11	October
Issued	Year 1984		
7. Application Date	Day 14	Month (in Words) January	Year 1995
Signature			

