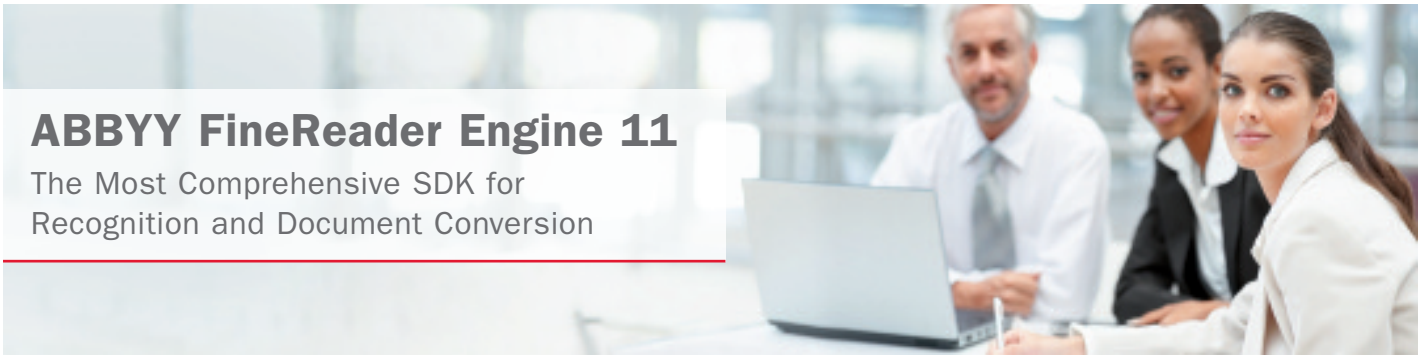
ABBYY



ABBYY FineReader Engine 11

The Most Comprehensive SDK for Recognition and Document Conversion

What is FineReader Engine 11?

FineReader® Engine 11 for Windows is the newest Software Development Kit (SDK) to integrate ABBYY's multilingual recognition and conversion technologies into external applications. The toolkit facilitates tight integration of ABBYY's core OCR (machine-print), ICR (handprint), OMR (check mark) barcode recognition and PDF technologies; FineReader Engine 11 is the definitive solution for creating highly accurate, scalable, efficient recognition and conversion systems. This is information transformation at its best.

Extreme Flexibility, Precise Results and Cost-Effectiveness

Modular Platform

FineReader Engine combines a full range of functions with the highest quality recognition, effective processing speed, and convenient development tools in a single SDK.

New: Classification

Based on a combination of image and content-based classifiers, the technologies support a wide range of document types. This information enables work-flow automation and reduces costs associated with manual pre-processing.

New: Business Card Reading

Enabling your applications to process business cards is now an easy task. ABBYY business card reading technology supports 27 recognition languages.

Flexible Enough for any Application

FineReader Engine can be used in:

- Archiving and document processing applications
- Control and verification systems
- Document conversion systems
- Fax processing applications
- Content creation and management applications
- Digital mailroom applications
- Document sorting applications
- Web publishing systems
- Intranet archiving applications
- Media clipping solutions
- Reading or voice-playback systems

Scalable Enough for any Application

Engine 11 can be used to build applications of any scale and complexity – from a client workstation, to a server-based solution or a large multi-million page project. Built-in multi-core support and flexible network licencing ensure flexible deployment and scalability. Available as 32-bit and 64-bit version.

Easy to Deploy

FineReader Engine offers easy access to core technologies and its COM API through development environments such as C/C++, Visual Basic and Visual Studio.NET. Optimised development profiles make it easy for developers to get started with new projects.

Cost-Effective

A modular architecture and pricing model offers a variety of features as “add-on” modules, allowing developers to choose only the functions they need, while providing the option to add new functions at a later date.

Secure Investment and Flexibility

ABBYY’s breakthrough technologies are permanently being optimised and extended. Multi-platform support allows developers to expand their markets by choosing the appropriate OS support for their applications: Windows, Linux, Mac OS and more.

PRODUCT OVERVIEW

- High quality recognition technologies for OCR, ICR, OMR, 1D and 2D Barcodes
- Language support for up to 202 OCR and 136 ICR languages
- New recognition technology for Arabic, improved Chinese, Japanese and Korean, also in combination with European languages
- Adaptive Document Recognition Technology (ADRT) processes all pages of a document as a logical unit to ensure unified export results
- Many export formats supported from pure text, XML, HTML, RTF, ODT, e-book, Microsoft Office vCard and XPS*
- PDF- & PDF/A document export for archiving, including, highly compressed MRC PDFs

BENEFITS FOR DEVELOPERS

- Ability to enhance your applications with multi language OCR and document conversion
- Full control over document processing settings and recognition results
- Document API to simplify processing
- Integrated Scalability through built-in multi CPU core support
- Visual Components for fast and easy integration of user interface elements
- Qualified technical support

ABBYY FineReader Engine 11

Processing & Feature Overview

Document Recognition and Conversion Step-by-Step

Step 1:
Document Input

FineReader Engine can acquire documents and images from different sources:

- Load **images from disc or memory**
- **Scan** images via TWAIN
- **New:** Asynchronous scanning and OCR processing
- Load **images from digital cameras**
- **Open PDFs** and automated, intelligent PDF processing

Engine 11 accurately converts all types of PDFs. The SDK can access internal PDF information like annotations, meta-data, font dictionaries, content streams and keep existing bookmarks.

Step 2:
Image Pre-processing

Once document pages are loaded, FineReader Engine offers a variety of image processing options which prepare the document images to deliver the best OCR results:

- **Image cleaning** routines to remove noise and garbage
- **Image optimisation** from digital cameras, e.g. straighten curved text lines
- **Auto-cropping. Auto-dual-page splitting.**
- Different algorithms for **skew correction** up to 20 degrees
- **Adaptive binarisation** and texture filtering

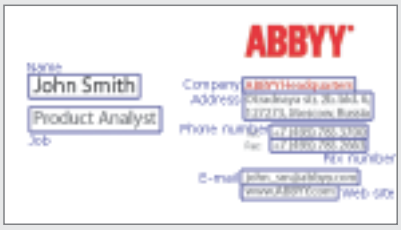
Step 3:
Document & Layout Analysis

After image pre-processing, the recognition areas have to be defined. Developers can choose 3 different modes for automatic document analysis (DA) based on artificial intelligence:

- **Full text DA** recognises all text on documents, including text embedded in pictures, charts and diagrams
- **DA with layout retention** automatically detects blocks, tables, barcodes, and pictures
- **Invoice pre-processing DA** focuses on numbers and tables
- **Manual block creation** is mostly used in Field Level/Zonal Recognition scenarios

NEW: BUSINESS CARD RECOGNITION

With the new business card reading capabilities of FineReader Engine 11, developers can now easily extend their applications and offer a solution for this problem.



Business card recognition technology is accessible via a new API in FineReader Engine 11. It offers special pre-processing features and access to the extracted data. Business card recognition supports 27 recognition languages. Multiple business cards scanned on one page can be automatically detected and separated before processing. The recognised data can be exported to the vCard format, a standard exchange format for managing contact information.

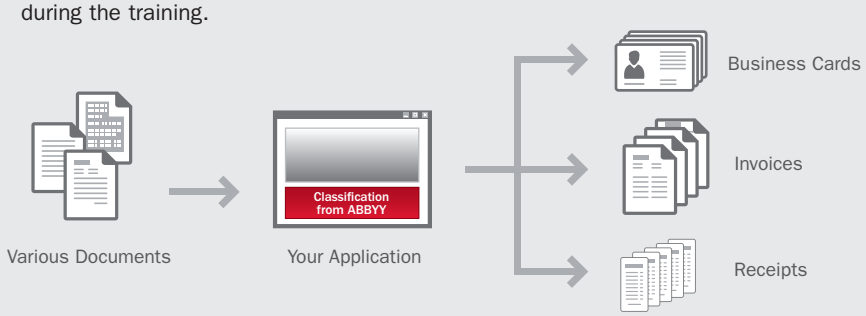
NEW: AUTOMATIC DOCUMENT CLASSIFICATION

ABBYY FineReader Engine 11 provides new functionality for document classification technology. Based on a combination of image and content-based classifiers, the technologies support a wide range of document types. The API also allows the training of different document types and provides confidence levels after classification run.

Classification Profiles

Classification can be executed in 2 modes:

- **Maximum Speed –** this mode is based on image pattern (black pixels location template) and quick OCR text analysis of title texts. It works up to 10 times faster than full-page OCR**.
- **Maximum Accuracy –** this mode is based on the full OCRed text. It analyses the full-text of the document including the title as well as the key words that were detected during the training.



After the classification has been run your application "knows" what document type is being processed, e.g. a business card, a receipt, an invoice or a complaint. This information enables workflow automation and reduces the costs associated with manual pre-processing. Users can easily train new document types via a custom designed interface. The precompiled code sample is a perfect starting point. It's not necessary to create document templates separately.

ABBYY FineReader Engine 11

Processing & Feature Overview

Document Recognition and Conversion Step-by-Step – *continued*

Step 4: Recognition

Once the recognition areas have been set up, character and word recognition are executed. The SDK supports 202 OCR and 136 ICR languages and has a built-in omnifont OCR Engine. So it is capable of recognising a wide variety of font types and objects:

- **Standard fonts** used in office environments, magazines, newspapers
- Documents printed with **dot-matrix** typewriters or receipts printers
- **Special fonts** like OCR-A, OCR-B, MICR (E13B) and CMC7
- **Old fonts** such as Fraktur and Schwabacher
- **Hand-printed characters** (ICR) in various field borders and frames
- **Checkmarks**
- **1D & 2D Barcodes**

FineReader Engine gives developers full processing control:

- **Recognition modes** normal, fast or balanced mode options for OCR, ICR, and barcodes
- **Intelligent processing of PDFs.** The SDK determines on a block-by-block basis when to apply full recognition or if the text layer can be used. Version 11 also allows the OCR to be turned off when the text layer can be trusted
- **Core recognition parameters tuning** allows certain algorithms for pre-processing, document analysis and recognition to be switched on / off
- **Sophisticated definition** of field content, by setting alphabets, dictionaries, regular expressions, types of segmentation, handwriting styles, etc.
- **Voting API**, gives developers access to word-level and character-level hypotheses. This information can then be used in external voting systems
- **Pattern training**, e.g. for special characters, or decorative fonts
- **Own language definitions and dictionaries** can be used to improve the recognition results

* Planned for a maintenance release of FineReader Engine 11.
** Based on internal ABBYY testing.

Step 5: Verification & User Interaction

Developers have full access to internal recognition results. Engine 11 provides basic information like the character coordinates, but also very advanced attributes, including:

- Font and formatting information
- Word and character recognition hypotheses

The information is available via API and XML Export, so that they can be used for automated correction. For simplified, user driven correction and verification, visual components (ActiveX controls) are available. So layout analysis results and uncertainly recognised characters can be changed, but also the page order within a document. Available components are:

- Scan Interface
- Document Viewer
- Image Viewer
- Text Editor
- Text Validator

Step 6: Export/Document Output

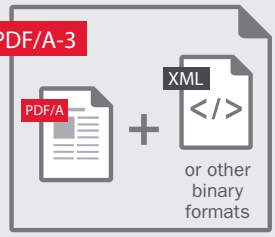
FineReader Engine 11 contains a new improved font management API allows extended access to the fonts (predefined font filters) used during document synthesis. The SDK offers multiple export options and formats:

- **TXT, CSV** – contain text in reading order, no formatting and layout information
- **HTML, RTF, ODT, DOCX, XLS(X) and PPTX** – allow direct usage and editing
- **E-book Formats** – EPUB (.epub) and FictionBook (.FB2)
- **ABBYY XML** – different levels of layout, paragraphs and formatting
- **ALTO XML** – Library standard to for OCR text and layout information of printed documents
- **New: vCard Export** of business card data
- **New: XPS** (XML Paper Specification)*
- **PDF Export** – further details below

NEW AND ENHANCED PDF CAPABILITIES

ABBYY's PDF export can be controlled via API or simple to use PDF export profiles. Options available are:

- **Image only PDFs**
- **Searchable PDFs** in different versions: text only, text under/above the page image
- **Tagged and linearised PDFs** for improved and faster information
- **Secured, encrypted PDFs** supporting open and permission passwords
- **Automated, intelligent PDF** processing access, using internal PDF information
- **New: Detection of an existing PDF text layer** and the ability to skip OCR and leave the document as is
- **MRC (Mixed Raster Content) compression for PDF and PDF/A.** MRC compression achieves significantly better file compression without visible degradation. File size can be up to 10 times smaller compared to JPEG compression**. Version 11 improvements allow higher background image compression.**
- **PDF/A Standards for long-term archiving:**
  PDF/A-1a & 1b – tagged and with unicode character maps
  New: PDF/A-2 – enables smaller files to be created using JPEG2000 compression, embedding of PDF/A files allowed
  New: PDF/A-3* – extension of the A-2 standard which allows the inclusion of PDF/A and other binary file formats such as XML or office.



ABBYY FineReader Engine 11

Specifications and Licencing

SPECIFICATIONS

System Requirements

- PC with x86-compatible processor (1 GHz or higher).
- Operating Systems (32 & 64-bit): Microsoft® Windows 8, Windows 7, Vista,Windows Vista® , Windows® XP, Windows Server® 2012 (only 64-bit), Windows Server® 2008, Windows Server® 2003
  Cloud Platforms: Microsoft® Windows® Azure, Amazon EC2
- Memory:
  - for processing one-page documents – minimum 400 MB RAM, recommended 1 GB RAM
  - for processing multi-page documents – minimum 1 GB RAM, recommended 1,5 GB RAM.
- Hard disk space: 800 MB for library installation and 100 MB for program operation plus additional 15Mb for every page of a multi-page document processed
- 100% TWAIN-compatible scanner, digital camera, or fax modem
- Video card and monitor (min. resolution 1024*768)

OCR

Multilingual OCR 202 languages (including Latin, Greek, Cyrillic alphabets, Arabic Chinese, Japanese and Korean), of which 52 languages with dictionary support.

Business Card Recognition

27 languages, including 4 hieroglyphic languages

Text Types

Normal, Matrix, Typewriter, Receipt, OCR-A, OCR-B, CMC7, MICR, Fraktur/Gothic, mixed text type support processing with auto detection on a word-level.

ICR

On digits, digits combined with letters of one language, and digits combined with letters of several languages, even if fields contain both upper and lower case letters. Separates field content from borders and frames. 136 languages, 38 with morphology, custom-field dictionaries; 22 handwriting styles including English, American, German, French and Russian.

Barcodes

Includes processing of barcodes that are damaged or are printed at any angle and fast barcode extraction, more than 16 most popular 1D industrial types, 2D PDF 417, Aztec, Data Matrix, QR Code, MaxiCode, USPS 4CB*.

Check mark (OMR)

Simple, grouped, model check marks, marks with “corrections” made by hand.

Input Formats:

BMP, PCX, DCX, JPEG, JPEG 2000, PNG, GIF, TIFF, DjVu, PDFs.

Output Formats

DOCX, ODT, XLS, XLSX, PPTX, CSV, TXT, XML, ALTO XML, EPUB, FB2, searchable PDFs, PDF/A-1, A-2, A-3*, compressed MRC PDF/As, XPS*, BMP, PCX, DCX, JPEG, JPEG 2000, PNG, TIFF, image snippet.

Development

FineReader Engine API supports the COM standard and can be easily used in Microsoft Visual Studio.NET (VB.NET, C#); Microsoft Visual Basic 5.0, 6.0; Microsoft Visual C++ 4.x and above; VB Script, and other scripting languages; Borland Delphi 2.0 and above; Any other development environment that supports COM and ActiveX objects correctly.

Further information online: **www.ABBYY.com**

** Planned for a maintenance release of FineReader Engine 11*

ABBYY Licencing Policy

ABBYY FineReader Engine is sold via a flexible, modular licencing policy that allows developers to select the best combination of tools and pricing options for their project. Licencing is offered as:

Developer Licences

Providing rights to develop and test applications based on FineReader Engine technology. The licence bundle includes three hardware licence dongles or one concurrent network licence. Each stand-alone licence allows up to 10.000 pages per month to be processed.

Runtime Licences

Grant the right to distribute applications with FineReader Engine functionality incorporated. Runtime Licences (RTL) differ by functionality, page volume, and network support (Network Runtime Licence). The Professional Runtime Licence provides access to core recognition technologies. Additional RTLs for specialised functions include the Barcode Runtime Licence and the FineReader XIX Runtime Licence.

Add-on Modules for Runtime Licences

RTLs can be enhanced by adding one or more of the following functionalities offered as add-on modules: Classification, PDF export, Arabic OCR, CJK (Chinese, Japanese, Korean) OCR, Thai OCR, Hebrew OCR, Vietnamese OCR, ICR.

Software Maintenance, Certification Trainings and Professional Services

To ensure the success of your projects ABBYY offers additional support, training, and certification programs for all products. If you need to speed up your project, contact ABBYY for Professional Services. Software Maintenance guarantees that you always have access to the latest technologies.

More ABBYY Developer Products

FineReader Engines for Other Platforms

ABBYY also offers its recognition technology for other operating systems such as Linux and Mac OS. This cross platform approach allows customers to follow market trends and to secure the investment that was made. ABBYY also offers customisation services for embedded OCR.

Mobile OCR Engine

ABBYY’s "compact code OCR" is optimised to deliver a highly accurate conversion of image files into text using a small amount of memory and system resources. Platform independence ensures support for operating systems such as Android, Linux, MacOS, iOS, Symbian, Windows (PC, x86).

Cloud OCR SDK

ABBYY’s online OCR Service with RESTful API offers full-text/full-page OCR, field-level/zonal OCR/ICR, barcode and business card recognition. Developers can register for free. Pre-paid and subscription models are available for production. The service is powered by Microsoft® Windows® Azure.

FlexiCapture Engine

ABBYY SDK for Data Capture scenarios allows document separation, classification, template matching for fixed forms as well as intelligent data extraction via FlexiLayouts from all kind of document types. FlexiCapture Engine functionality can also be combined with FineReader Engine API.

ABBYY Europe GmbH
Elsenheimerstr. 49,
80687 Munich, Germany
Tel: +49 89 511 159 0
sales_eu@abbyy.com
www.ABBYY.com

ABBYY UK
sales_UK@abbyy.com

ABBYY France
sales_france@abbyy.com

ABBYY Spain
sales_es@abbyy.com

ABBYY Italy
sales_it@abbyy.com

ABBYY Benelux
sales_benelux@abbyy.com

ABBYY Scandinavia
sales_nordic@abbyy.com