

ABBYY® FineReader Engine 9.0 for Linux

The Most Comprehensive SDK for Recognition and Document Conversion



What is FineReader Engine 9.0 for Linux ?

ABBYY FineReader Engine 9.0 for Linux is the newest Software Development Kit (SDK) to integrate ABBYY's multilingual recognition and conversion technologies into Linux applications. The toolkit facilitates tight integration of ABBYY's core OCR (machine-print), barcode recognition and PDF technologies. The feature set includes API for restoring document layout (such as columns, header, page numbers etc), creating highly compact PDF files and correcting photographs distortions. ABBYY FineReader Engine 9.0 for Linux is the definitive solution for creating highly accurate, efficient and robust 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.

Flexible Enough for Any Type of 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 for visually impaired
- Spam filtering/ Data leak prevention/ Enterprise search systems
- Payment terminals

Single Supplier of all Technologies

ABBYY delivers full-range state-of-the-art technologies for document conversion and developing own Data Capture solutions thus developers don't need to source different SDKs for different tasks.

Scalable Enough for any Size of Application

The Engine 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.

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 time.

Secure Investment and Flexibility

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

Product Benefits

- High quality recognition technologies for OCR, 1D and 2D Barcodes
- Language support for more than 190 OCR languages
- Adaptive Document Recognition Technology (ADRT®) processes all pages of a document as a logical unit to ensure unified export results
- New recognition technology for Chinese, Japanese and Korean, also in combination with European languages
- Many supported export formats from pure text, XML, HTML, RTF up to the latest Microsoft Office 2007 file formats
- 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
- Qualified technical support

Processing

Document Recognition and Conversion Step-by-Step

ABBYY FineReader Engine 9.0 for Linux is based on a sophisticated platform supporting the latest document conversion and recognition technologies. From document or file input, to processing and export, the SDK gives developers access to a broad range of functionality across each step in the recognition process.

Step 1) Document Input

FineReader Engine can acquire documents and images from different sources:

- Load images from disc or memory
- Load images from digital cameras
- Open PDFs

Engine 9.0 accurately converts all types of PDFs. The SDK can access internal PDF information like annotations, meta-data, font dictionaries, and content streams.

Step 2) Image Preprocessing

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

- Image cleaning routines to remove noise and garbage



- Optimisation of images from digital cameras, e.g. straighten curved text lines
- Dual-page splitting
- Different algorithms for skew correction up to 20 degrees
- Built-in 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 brings auto-detection of blocks, tables, vertical text, barcodes, and pictures
- Invoice pre-processing DA with a focus on numbers and tables
- Manual block creation is mostly used in Field Level/Zonal Recognition scenarios

Step 4) Recognition

Once the recognition areas are set up, character and word recognition are executed. The SDK supports over 190 OCR languages and has a built-in omnifont OCR Engine. So it is capable to recognise a large variety of font types and objects:

- Standard fonts used in office environments, magazines, newspapers
- Documents printed with dot-matrix printers or typewriters
- Special fonts like OCR-A, OCR-B, MICR (E13B) and CMC7

FineReader Engine gives developers full processing control:

- Recognition modes normal, fast or balanced mode options for OCR, and barcodes
- Intelligent processing of PDFs. The Engine determines on a block by block basis when to apply full recognition or if the text layer can be used
- Core recognition parameters tuning allows switching on/off certain algorithms for pre-processing, document analysis and recognition
- Sophisticated definition of field content, by setting alphabets, dictionaries, regular expressions, types of segmentations, handwriting styles, etc.
- Voting API, gives developers access to word-level and character-level hypotheses.

Step 5) Verification

Developers have full access to the internal recognition results. Engine 9.0 for Linux provides basic information like the character coordinates, but also very advanced attributes, like:

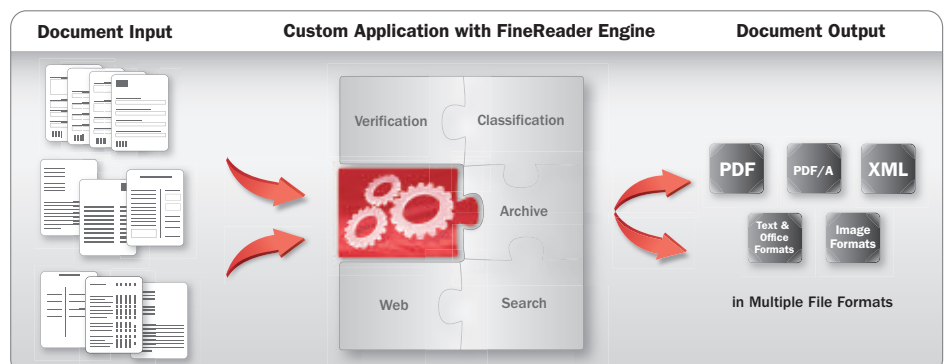
- Font and formatting information
- Word and character recognition hypotheses

The information is available via API and XML Export, so that they can be used for automated correction.

Step 6) Export/Document Output

FineReader Engine 9.0 for Linux offers multiple export options and formats:

- TXT, CSV, DBF – contain text in reading order, but no formatting and layout information
- XML – different levels of layout and formatting
- HTML, RTF, DOC(X), XLS(X) and PPT(X) – allow direct usage and editing
- PDF, highly compressed MRC PDFs, PDF/A – direct usage in business processes and archiving



Feature Overview

SDK Functions and Features

OCR as Daemon

A daemon on Linux is like a service under Windows; they can be started or stopped together with the operating system, on schedule or manually. ABBYY provides a code sample that shows how FineReader Engine 9.0 for Linux can be used as a daemon. It demonstrates the usage of ABBYY OCR technologies and it determines the current features and advantages.

- Implementation of OCR as a service on the OS level
- Receiving asynchronous jobs from different clients
- Using OCR as a service that has fewer privileges than any user account
- The sample contains code of server and client part

OCR via the Command Line

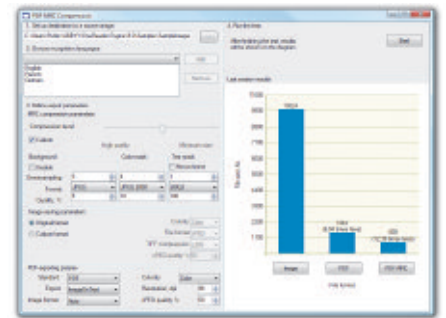
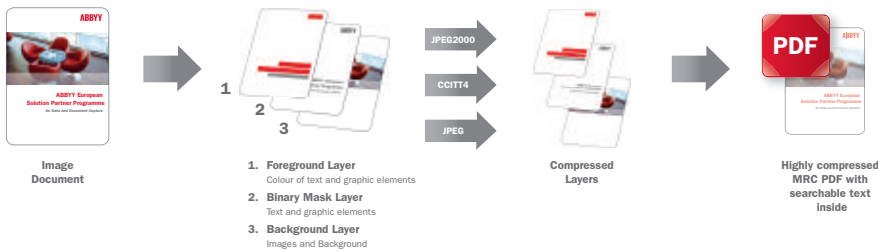
FineReader Engine 9.0 for Linux also comes with a code sample that shows how OCR can be used and integrated via the terminal. If you would like to test a ready to use CLI tool, you can get a trial under www.ocr4linux.com. Differences between the SDK and the CLI approach are:

	OCR SDK	CLI OCR
Usage	Coding & integration needed	Ready to use
Integration	Possible to integrate OCR & document conversion natively in systems that are developed in C/C++	Integration on a terminal/script level
Feature Set	The SDK allows to set up the processing an processing and export parameters on a very granular level	Limited feature set makes it easy to use
Low Level Access	SDK gives access to internal processing results, this allows OCR tuning and re-recognition before the export	Only access to the recognition results
Investment	Initial SDK Investment	No pre-investment
Distribution Pricing	Possible to get customised Runtime Licences	Fixed defined feature set & volume packages

NEW: MRC (Mixed Raster Content) Compression for PDF and PDF/A

MRC compression achieves significantly better file compression without visible degradation of document representation. Significantly reduced file size, up to 10 times

smaller compared to JPEG compression. Ideal when colour documents are scanned and processed. The parameters of compression for background, colour and text mask can be set.



MRC settings in FineReader Engine 9.0 can be fine tuned with different parameters; the illustration shows a code sample that comes with the Windows version of the SDK.

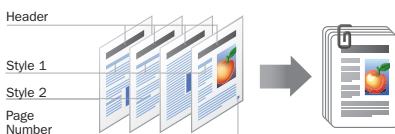
NEW: Adaptive Document Recognition Technology (ADRT®)

ADRT is a new recognition technology based on an innovative set of document synthesis algorithms developed by ABBYY.

It automatically builds a logical model of the document structure and identifies:

- Formatting purpose of elements like headers and footers, footnotes, page numbers, etc.
- How document elements should be reconstructed

Documents generated by ADRT have consistent formatting across all pages of a document because they are processed as a unit. ADRT preserves integrity with logical relations between elements, for example, during the export to DOC(X) page numbers, headers and footers are automatically formatted and linked in an intelligent way.



Specifications and Licencing

Specifications

System Requirements

- PC with Intel® Pentium® /Celeron® / Xeon™, AMD K6/Athlon™/Duron™/ Sempron™ or compatible processor with a min. clock speed of 1 GHz
- Operating System:
 - Fedora 10, 11, 12
 - Red Hat Enterprise Linux 4 ES/AS, 5
 - SUSE Linux 10
 - SUSE Linux Enterprise Server 11
 - openSUSE 10.3, 11.1
 - WhiteBox Enterprise Linux Respin 1, Respin 2
 - Debian GNU/Linux 4.0, 5.0
 - Ubuntu 6.06 LTS, 7.10, 8.04 LTS
- Memory: 256 MB RAM for processing one-page documents, 512 MB RAM for processing one-page documents in Chinese, Japanese, or Korean, 1 GB RAM for processing multi-page documents.
- Hard disk space: 860 MB for full installation and 250 MB for program operation.
- Video card and monitor (min. resolution 800x600)
- Keyboard, mouse or other input device

OCR

Multilingual OCR in over 190 languages (including Latin, Greek, Cyrillic alphabets, Chinese, Japanese and Korean), thereof 47 languages with dictionary support.

Text Types

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

Barcodes

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

Input Formats:

BMP, PCX, DCX, JPEG, JPEG 2000, PNG, GIF, TIFF, DjVu, PDFs (Version 1.6 or earlier).

Output Formats

DOC, DOCX, XLS, XLSX, PPT, PPTX, DBF, CSV, TXT, XML, searchable PDFs, PDF/A, compressed MRC PDF/As, BMP, PCX, DCX, JPEG, JPEG 2000, PNG, TIFF, image snippets.

Development

ABBYY FineReader Engine 9.0 for Linux is designed for glibc version 2.6.1 and above. For dynamic library support the standard libstdc++.so.6 and libgcc_s.so.1 libraries have to be used.

Further information online:

www.ABBYY.com

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 licence keys, they allow processing of up to 10.000 pages per month.

Runtime Licences

Grants right to distribute applications with FineReader Engine functions incorporated. Runtime Licences (RTL) differ by functionality, pages processed per month/year, and number of supported CPU cores when there is no page counter. The Professional Runtime Licence provides access to core recognition technologies. Additional RTLs oriented to specialised functions include the Barcode Runtime Licence and 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: PDF export, CJK (Chinese, Japanese, Korean) OCR, Thai OCR, Hebrew OCR, Vietnamese OCR, 2D barcode recognition, document analysis for invoices.

Support, Maintenance and Upgrade Assurance (SMUA), Certification Trainings and Professional Services

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

More ABBYY Developer Products

FineReader Engines for Other Platforms

ABBYY offers its recognition technology also for other operating systems like Windows, Mac OS and embedded OS. This cross platform approach allows customers to follow market trends and to secure the investment that was made.

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 such operating systems as Android, Linux, Mac OS for iPhone, Symbian, Windows (PC, x86) and Windows Mobile®.

Recognition Server

Recognition Server is a robust, scalable, server-based solution for automating optical character recognition and PDF/document conversion in enterprises. It can be integrated via API. Recognition tasks can be outsourced to Recognition Server since the SDK can reuse the internal file format with all results.

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.

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