

MyScript Builder ME

MyScript Builder Mobile Edition (MSB ME) is a Software Development Kit (SDK) for integration of handwriting recognition capabilities on iOS or Android based applications.



MSB ME offers best-in-class accuracy and powerful ink search and handwriting recognition capabilities. It reliably recognizes natural handwriting including: isolated characters, hand-printed and cursive handwriting.

MYSCRIPT VALUES YOUR APPLICATIONS

+ Comfort & ease of use

MyScript gives the comfort of entering text through natural handwriting, without changing writing habits.

+ Time saving & cost efficient

No more retyping of handwritten information. MyScript offers a time saving and cost efficient solution to applications requiring free text entry.

+ Immediate availability of data

The use of MyScript improves workflow considerably as handwritten information is immediately available for use in back-end applications.

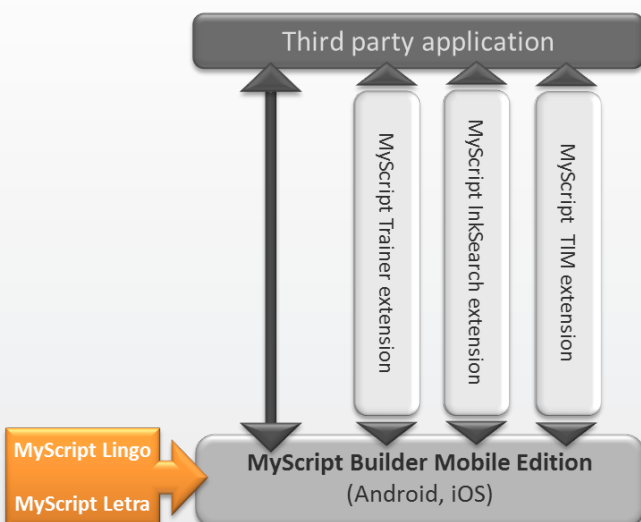
+ Customization

Regardless of the Internet Media Tablet on which you are developing, you can bring MyScript to it. MyScript Builder ME can be adapted to proprietary platforms on demand.

+ Extended possibilities

Vision Objects proposes **extension SDKs** that add more power and wider possibilities to MyScript Builder. These extension SDKs help optimize MyScript Builder ME for specific application types, such as notes management.

MYSCRIPT BUILDER MOBILE EDITION PRODUCT OFFER



MyScript is online handwriting recognition technology. It captures and uses all information provided by your handwriting: shape of characters, writing style, time order of strokes.

You can develop any handwriting recognition-based functionalities with MyScript Builder Mobile Edition, but to help you improve development cost and speed and reduce time to market, Vision Objects has prepared building blocks for special market needs.

- **MyScript InkSearch extension:** to create a search engine for handwritten content.
- **MyScript Trainer extension:** to create user profiles in order to provide higher accuracy for people whose writing differs from the "average".
- **MyScript Text Input Method (TIM) extension:** to create text input methods, or real-time handwriting recognition applications.



FEATURES AT A GLANCE

✔ Handwriting understanding

MyScript does not just convert handwriting to digital text: it “understands” natural handwriting. In addition to characters, MyScript recognizes word components, complete words and phrases. Through powerful language models MyScript verifies that what is recognized actually fits in the context.

✔ Natural handwriting

MyScript reliably recognizes all types of handwriting:



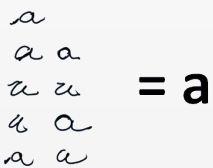
Handprinted characters

Cursive handwriting

✔ Variation in handwriting

Trained on thousands of handwriting samples collected around the world, MyScript takes into account the alphabet, the vocabulary and country-specific handwriting styles for each language.

This information allows MyScript to deliver high recognition accuracy rates.



✔ Language specificities

The recognizer takes into account a large amount of language specificities:

- **All types of characters:** alphabet-based (e.g. Arabic, Cyrillic, Devanagari, English, Greek, Hebrew, Tamil), or ideograms (e.g. Chinese or Japanese).
- **Mix of Asian languages with English cursive handwriting:** MyScript recognizes cursive English when combined with Asian languages (Simplified and traditional Chinese, Japanese, Korean).
- **Writing directions:** In addition to left to right writing, MyScript recognizes right to left writing direction for Arabic and Hebrew, as well as Japanese vertical writing.

✔ Handwritten text correction

Recognition can detect:

- Erasure of text (crossing out, strikethrough, double-strikethrough, scratch out),



- Ink incidents such as missing pen lifts (cursive style writing in boxed fields) or identical characters written on top of each other,



- Insertion of text.



✔ Optimized isolated character recognition

Improve boxed field recognition with the ability to treat spelling distortion, erased characters and out of lexicon words.

For instance:

- Omitted characters: Hello world
- Superfluous characters: ENGINE
- Substituted characters: ENGINE

✔ Data formats

Data formats describe the **structure and syntax of expected handwritten data input** as well as the variation in the word/digit order, abbreviations and typical words or expressions. Pre-defined data formats are available within MyScript Builder such as phone numbers, dates and email addresses. You can also create and test data formats with **MyScript Language Resource Tool**, an Integrated Development Environment with a friendly Graphic User Interface.

✔ Confidence scores

MyScript provides a top list of candidates with **confidence scores at a character and word level** that indicates both accuracy and recognition quality. This helps to define a resemblance threshold that can be used to decide whether a recognition result is satisfactory or not (especially appreciated in form processing applications).

✔ Interactive handwriting

MyScript recognizes **intuitive gestures, circled characters, words and phrases** to make handwritten text even more **interactive**. For example, to a circled piece of text you can attach the action “send text as an email”.

✔ Special characters

In addition to commonly used characters, such as alphabet and punctuation, MyScript Builder supports **specific characters** used especially in note taking applications in indented and bulleted lists, such as:

- Bullet
- Arrows
- ↳ Arrows
- ✓ Tick

TECHNICAL SPECIFICATIONS

Language packs

MyScript Builder ME supports all MyScript Lingo and Letra language packs. See the MyScript Lingo and MyScript Letra datasheet for more details.

SDK contents

APIs

C, Java (with C and Java code examples)

Operating Systems

- Android 1.6 and later
- iOS 3.2 and later

InkTool

InkTool is an ink editor for managing and testing recognition on handwritten ink samples. It allows the user to analyze ink files and to choose the optimal configuration to get the best handwriting recognition results.

MyScript Language Resource Tool

This standalone application enables developers to create, debug, manage and test specific language resources. One license is delivered with the SDK, possibility to add licenses if needed.

Developers' Guide

This comprehensive guide brings developers quickly up to speed in creating applications integrating MyScript handwriting recognition capabilities. It provides a vast range of examples for C and Java.

Performances*

The table below shows a sample of the recognition time for different types of handwriting using MyScript Lingo language packs.

	Cursive handwriting**	Isolated characters***
Arabic, Cyrillic, Latin, Greek, Hebrew	17 char/sec	990 char/sec
Chinese, Japanese, Korean	9 char/ sec	250 char/sec

* These performances are obtained on a machine running under Android Galaxy tab:2.2 - Processor 1GHz - ARM Cortex A8 - RAM 512 Mo

** With Linguistic resources - ***Without Linguistic resources

SERVICES

Vision Objects can assist you during the development of your solution in several ways: Developer Training, Technical Support and Professional Services.

Developer training

Vision Objects offers different levels of training to help partners build powerful recognition-based applications, depending on the chosen developer license.

Technical support and maintenance

Vision Objects provides support for its products. During the support period, partners can send information requests through a dedicated support site and **benefit from regular upgrades** of the licensed Vision Objects products.

Professional services

Vision Objects proposes development and integration services as well as third-party solution certification prior to the release of MyScript-powered applications. These services help Vision Objects' partners in developing solutions that provide the best possible recognition accuracy rates.

Examples of our Development and Integration services include:

- Consultancy in integrating handwriting recognition
- Consultancy in the use of SDK tools
- Code review
- Development of custom recognition resources
- Consultancy in setting rejection thresholds in data validation tools
- Development of on-demand data formats for vertical markets (such as healthcare, insurance, banking, etc.)

MYSCRIPT BUILDER EXTENSIONS

MyScript Builder ME Software Development Kit extensions offer the possibility to **add more power and more possibilities to solutions integrating MyScript Handwriting Recognition.**

These extensions are completely modular and are a perfect fit to high performance applications.

MyScript InkSearch extension

MyScript InkSearch is an SDK extension tailored to MyScript Builder ME that turns handwriting into searchable information. MyScript InkSearch provides the tools to create a search engine that retrieves all words, even those that are not in the dictionary, such as an acronym, a brand name or a last name.

Search engine for handwritten content:

MyScript InkSearch works through a system of indexes and queries: to provide quick searches, the digital ink file is indexed at storage time and then, the query runs through this index to find the required information. The search results quickly display the pages which contain the information you are looking for and its location. The most pertinent results are displayed at the top of the list.

There is no need to convert the text: indexing and searching is done on the raw ink, saving processing time.

MyScript Trainer extension

For people whose writing style differs from the "average", MyScript Trainer can improve recognition by **creating a custom handwriting profile.** Once the individual profile is created, it can be managed by the application to create a personal recognition environment.

MyScript Trainer is available as an extension to MyScript Builder and supports all the Lingo language packs.

MyScript Text Input Method extension

MyScript Text Input Method is an extension to MyScript Builder ME designed for quick development of text input methods, or real-time handwriting recognition applications. It uses a multi-threaded implementation, enabling the user to write and the recognition process to happen at the same time. This means that the recognition result is displayed while the user is writing, which is perfect for input methods and dynamic note taking.

MyScript Text Input Method extension also offers an easier way for dealing with recognition settings: the handwriting style, the working language, data format and the recognition speed can be set up in one place by using simple configuration files.

MYSCRIPT BUILDER MOBILE EDITION (ME) vs. MYSCRIPT BUILDER EMBEDDED EDITION (EE)

Features

Recognition	MSB EE	MSB ME
• Handwriting styles		
- Isolated characters	✓	✓
× Spelling correction (omitted, superfluous or substituted characters)		✓
- Natural Cursive Handwriting	✓	✓
- Support of handprinted English combined with asian characters	✓	✓
- Support of cursive English combined with asian char		✓
- Japanese vertical handwriting		✓
• Text corrections		
- Erasure of text (Crossing out, Striketrough, Scratch out)		✓
- Insertion of text		✓
• Handwriting recognition modes		
- Synchronous recognition (real time)	✓	
- Asynchronous recognition (batch mode)	✓	✓
• Special characters		
- Bullets		✓
- Arrows		✓
- Ticks		✓
• Intuitive gestures		
- Space	✓	✓
- Line break	✓	✓
- Backspace	✓	✓
- Circled characters		✓

Extensions	MSB EE	MSB ME
• Inksearch		✓
• Trainer		✓
API		
• C	✓	✓
• Java	✓	✓
Operating systems		
• Android	✓	✓
• iOS	✓	✓
• Linux Embedded	✓	
• Windows Mobile	✓	
• Symbian OS	✓	

Performances

- **Speed for Latin & Cyrillic languages (ms/ char):**
MSB EE: 30 to 50 / MSB ME: 75 to 100
- **Speed for Asian languages (ms/char):**
MSB EE: 75 to 150 / MSB ME: 200 to 350
- **Accuracy:** An average of 25 to 30% less error rate for MSB ME compared to MSB EE.

