



ABBYY® Real-Time Recognition SDK®

Developer's Guide

Table of Contents

Introduction	5
Guided Tour	7
How to Add the Library to Your Xcode Project	7
How to Capture Text from Camera	7
How to Recognize Text on Photos	9
How to Capture Data from Documents	10
How to Capture a Custom Data Field	15
Code Samples	17
API Reference	19
RTREngine class	19
sharedEngineWithLicenseData method	20
createCoreAPI method	20
createDataCaptureServiceWithDelegate method	21
createTextCaptureServiceWithDelegate method	22
languagesAvailableForOCR method	22
RTRDataCaptureService protocol	23
addSampleBuffer method	23
configureDataCaptureProfile method	24
setAreaOfInterest method	24
stopTasks method	24
RTRDataCaptureServiceDelegate protocol	25
onBufferProcessedWithDataScheme method	25
onError method	26
onWarning method	26
RTRDataCaptureProfileBuilder protocol	26
checkAndApply method	27
addScheme method	27
setRecognitionLanguages method	28
RTRDataSchemeBuilder protocol	28
addField method	29
setName method	29
RTRDataFieldBuilder protocol	30
setName method	30
setPredicateBlock method	31
setRegEx method	31
RTRFieldPredicateBlock	31
RTRTextCaptureService protocol	32
addSampleBuffer method	33

setAreaOfInterest method	33
setRecognitionLanguages method	33
setTranslationDictionary method	34
stopTasks method	34
RTRTextCaptureServiceDelegate protocol	34
onBufferProcessedWithTextLines method	35
onError method	36
onWarning method	36
RTRRecognitionService protocol	36
addSampleBuffer method	37
setAreaOfInterest method	37
stopTasks method	37
RTRRecognitionServiceDelegate protocol	38
onError method	38
onWarning method	38
RTRCoreAPI protocol	39
recognizeText method	39
RTRCoreAPIProcessingSettings protocol	40
RTRCoreAPITextRecognitionSettings protocol	40
setAreaOfInterest method	41
setRecognitionLanguages method	41
RTREngineSettings class	41
RTRExtendedSettings class	42
RTRCharInfo class	43
RTRDataField class	44
RTRDataScheme class	44
RTRTextLine class	45
RTRTextBlock class	46
RTRCallbackWarningCode enumeration	46
RTRResultStabilityStatus enumeration	47
Specifications	48
Device Requirements	48
Distribution Kit	48
Available Languages	58
Translation Dictionaries	62
Data Capture Profiles	62
Regular Expressions	141
Copyright and Trademark Notices	144
Contact ABBYY	147
How to Buy	147
Technical Support	147

Introducing ABBYY Real-Time Recognition SDK 1

ABBYY Real-Time Recognition SDK provides a technology for recognizing text directly on the smartphone's camera preview screen.

Key features

Real-time OCR

Real-Time Recognition SDK does not require snapping a photo but offers the possibility to capture text on-the-fly using a series of images from the smartphone's camera preview screen. Combining several images enables Real-Time Recognition SDK to recognize text even in situation when it is hard to obtain a still photo of suitable quality for recognition. This makes real-time recognition more convenient and in many cases significantly faster than taking a picture of the text followed by OCR, or entering the text manually. On top of that, Real-Time Recognition SDK also supports recognizing an image from a file that allows it to process existing photos, working in the same way as traditional OCR.

Translation

Real-Time Recognition SDK provides built-in translation dictionaries for word-by-word and phrase-by-phrase translation. The dictionaries contain words and some common phrases for the main European languages as well as for Chinese and Japanese. Translation dictionaries are optimized to work on mobile devices.

Recognition of text from real-world objects

Real-Time Recognition SDK can locate texts in real-world scenes and extract meaningful text of any color from most backgrounds. This feature enables you to extract information from street signs, menus, etc.

Merging the recognition results

Images obtained from camera video stream often have noticeable defects (such as motion blur) which may lead to OCR errors. To increase recognition accuracy and eliminate random recognition errors, Real-Time Recognition SDK uses an intelligent aggregation mechanism, which combines recognition results from several video frames.

Data capture

Real-Time Recognition SDK can extract data from a document (for example, date, total amount, e-mails, codes, and other). All you have to do is set a regular expression that describes the required content, and the data capture engine will do the rest. If necessary, you can also specify validation rules to make sure that the information being extracted is the right one — when it does not satisfy validation rules, no data will be extracted at all. It is even much easier when it comes to processing machine-readable zones in documents (MRZ) or international bank account numbers (IBAN) — what you have to do is select a corresponding profile, and the data capture engine will extract all the necessary data.

Out-of-the-box document capture support

With Real-Time Recognition SDK you can easily add functionality to extract important fields from specific documents: passports, IDs, bank cards and others. If you would like to add support for these documents or a different kind of document to your app, please contact rtrsdk@abbyy.com.

For example, when reading a bank card, Real-Time Recognition SDK will automatically detect and extract the date of expiry, cardholder name, and card number, without requiring you to set specific rules or regular expressions.

Using the documentation

This Developer's Guide contains all the necessary information about ABBYY Real-Time Recognition SDK.

- [**Guided Tour**](#)
This section will help you get started with ABBYY Real-Time Recognition SDK.
- [**API Reference**](#)
The complete description of ABBYY Real-Time Recognition SDK Objective-C API.
- [**Specifications**](#)
The list of supported operating systems, hardware requirements, files necessary for distribution, acknowledgements of third-party solutions, etc.

Guided Tour

This section will help you to get started using ABBYY Real-Time Recognition SDK.

- [How to Add the Library to Your Xcode Project](#)
- Step-by-step guides to the simple scenarios:
 - [How to Capture Text from Camera](#)
 - [How to Recognize Text on Photos](#)
 - [How to Capture Data from Documents](#)
 - [How to Capture a Custom Data Field](#)
- [Code Samples](#)

How to Add the Library to Your Xcode Project

To create an application which uses ABBYY Real-Time Recognition SDK to capture text from the camera preview, you will need to add the library to your project and copy the necessary resource files. This is required for new projects only — packaged examples work out of the box.

1. Add **AbbyyRtrSDK.framework** to your project.
2. Add the license file to your project (simply drag and drop it into your project window).
3. Select your project in the **Target** group and open the **Build Phases** tab. In the **Link Binary With Libraries** section, click "+" and add the **libc++.tbd** library.
4. Now you need to add the resource files and set up the copying rules. There are three types of resources used by the library: dictionaries, patterns, and translation dictionaries. See [Distribution Kit](#) for a detailed description of the necessary resources. For each type of resources:
 - a. Go to **Build Phases** and add a new **Copy Files** phase.
 - b. In the **Destination** field, specify **Resources**.
 - c. In the **Subpath** field, specify **Dictionaries** (or **Patterns**, **Translation** respectively).
 - d. Add the dictionary files (patterns, translation dictionaries) for the languages you need.

 **Important!** *Your application needs an Internet connection to gather the information about the current state of the library.*

How to Capture Text from Camera

This guide walks you through a simple real-time text capture scenario, in which the user points the device's camera at the text to be recognized.

How it Works

The purpose of Real-Time Recognition SDK for Android OCR development is to enable your application to capture information directly from the smartphone camera preview frames, without actually snapping a picture. Once you start capturing, the Real-Time Recognition SDK engine will automatically request new camera frames and process them, using each new frame to verify and improve the recognition result from the previous frame. This process is continued until the result reaches the required stability level. Combining several images enables Real-Time Recognition SDK to recognize text even in situation when it is hard to obtain a still photo of suitable quality for recognition.

Note that Real-Time Recognition SDK also supports recognizing text on an image that was already saved to a file, which allows it to process existing photos, scanned texts, and so on. See [How to Recognize Text on Photos](#) for the description of this scenario.

Implementation

Note: Before you begin, see [How to Add the Library to Your Xcode Project](#).

To implement the real-time text capture scenario, follow these steps:

1. Implement a delegate conforming to the [RTRTextCaptureServiceDelegate](#) protocol. The delegate will handle messages from the text capture service. Here are the recommendations on what its methods should do:
 - The [onBufferProcessedWithTextLines:resultStatus:](#) method is where you work with the results, display them to the user, etc.
 - The [onError:](#) method is for handling processing errors.
 - The [onWarning:](#) method can optionally be used to show warnings to the user.
2. Create an [RTREngine](#) object using the [sharedEngineWithLicenseData:](#) method. The method requires an [NSData](#) object containing your license data. For example, you can use [dataWithContentsOfFile:](#) to create a data object, then pass this object to the [sharedEngineWithLicenseData:](#) method.
3. Use the [createTextCaptureServiceWithDelegate:](#) method of the [RTREngine](#) object to create a background text capture service. Only one instance of the service per application is necessary: multiple threads will be started internally.
4. Configure the text capture service:
 - If you are using a recognition language different from English, specify it using the [setRecognitionLanguages:](#) method. Multiple languages are also supported, although setting too many languages may decrease recognition performance.
 - Your application can automatically translate the recognized text. To enable translation, add a dictionary using the [setTranslationDictionary:](#) method.
Note that when a dictionary is set, recognition results are returned in the target language, and text in the source language is no longer available.
 - It is also recommended to call the [setAreaOfInterest:](#) method to specify the rectangular area on the frame where the text is likely to be found. For example, your application may show a highlighted rectangle in the UI into which the end user will try to fit the text they are capturing. The best result is achieved when the area of interest does not touch the boundaries of the frame but has a margin of at least half the size of a typical printed character.
5. Implement a delegate that adopts the [AVCaptureVideoDataOutputSampleBufferDelegate](#) protocol. Instantiate an [AVCaptureSession](#) object, add video input and output and set the video output delegate. When the delegate receives a video frame via the [captureOutput:didOutputSampleBuffer:fromConnection:](#) method, pass this frame on to the text capture service by calling the [addSampleBuffer:](#) method.
We recommend using the `AVCaptureSessionPreset1280x720` preset for your [AVCaptureSession](#). Also note that your video output must be configured to use the `kCVPixelFormatType_32BGRA` video pixel format.
6. Process the messages sent by the service to the [RTRTextCaptureServiceDelegate](#) delegate object. The result will be delivered via the [onBufferProcessedWithTextLines:resultStatus:](#) method. It also reports the result stability status, which indicates if the result is available and if it is likely to be improved by adding further frames (see the *resultStatus* parameter). Use it to determine whether your application should stop processing and display the result to the user. We do not recommend using the result until the stability level has reached at least [RTRResultStabilityAvailable](#).

The result consists of one or more text lines represented by objects of the [RTRTextLine](#) class. Each [RTRTextLine](#) contains information about the enclosing quadrangle of a single line of text, and the recognized text as a string.
Work with the results on your side.

7. When pausing or quitting the application, call the [stopTasks](#) method to stop processing and clean up image buffers. The text capture service keeps its configuration settings (language, area of interest) and necessary resources. The processing will start automatically on the new call to the [addSampleBuffer:](#) method.

See the description of classes and methods in the [API Reference](#) section.

How to Recognize Text on Photos

This guide explains how Real-Time Recognition SDK can be used as a common OCR solution, recognizing text on existing images.

How it Works

Real-Time Recognition SDK provides access to single image processing functions, enabling the generic OCR functionality. This scenario works with any image file you can load to memory. It does not require access to the camera on the device.

Implementation

 **Note:** Before you begin, see [How to Add the Library to Your Xcode Project](#).

To implement the image recognition scenario, follow these steps:

1. Create an [RTREngine](#) object using the [sharedEngineWithLicenseData:](#) method. The method requires an [NSData](#) object containing your license data. For example, you can use [dataWithContentsOfFile:](#) to create a data object, then pass this object to the [sharedEngineWithLicenseData:](#) method.
2. Use the [createCoreAPI](#) method of the [RTREngine](#) object to create a recognizer object which conforms to the [RTRCoreAPI](#) protocol.
3. If you want to change recognition settings, use the [textRecognitionSettings](#) property of the recognizer object ([RTRCoreAPITextRecognitionSettings](#) protocol).
 - If you are using a recognition language different from English, specify it using the [setRecognitionLanguages:](#) method. Multiple languages are also supported, although setting too many languages may decrease recognition performance.
 - It is also recommended to call the [setAreaOfInterest:](#) method to specify the rectangular area of the image where to search for text. For example, your application may provide controls that allow user to select a smaller part of image for recognition if needed. Also, best results are achieved when the area of interest does not cover the whole image but has a margin of at least half the size of a typical printed character.
4. The [processingSettings](#) property of the recognizer object ([RTRCoreAPIProcessingSettings](#) protocol) allows you to set the number of processing threads.
5. Recognition starts with a call to the [recognizeText:onProgress:onTextOrientationDetected:error:](#) method. It requires you to implement the following callbacks (passed as arguments to this method):

- a. A progress callback (*onProgress*) that receives estimated completion percentage and warnings. This callback should return a BOOL value. The return value can be used to interrupt processing: return TRUE to terminate the current operation, FALSE to continue.
 - b. A callback that informs you when the image orientation is detected (*onTextOrientationDetected*).
 - c. A callback to handle errors (*error*).
6. When finished, the [recognizeText:onProgress:onTextOrientationDetected:error:](#) method will return an array of [RTRTextBlock](#) objects which contain the results of recognition for the text areas found on the image. Each [RTRTextBlock](#) is an array containing one or more text lines represented by [RTRTextLine](#) objects. Each [RTRTextLine](#) contains information about the enclosing quadrangle for a single line of text and the recognized text.
Work with the results on your side.

See the description of classes and methods in the [API Reference](#) section.

How to Capture Data from Documents

This guide describes the procedure you need to follow to create an application which captures data from a specified type of document, without snapping a photo.

How it Works

In data capture scenarios, the processing quality is improved by the fact that we know which kind of fields may be expected on the document. When you start capturing, you specify the type of document you are going to recognize (a data capture profile). The Real-Time Recognition SDK engine will automatically request new camera frames and process them, trying to apply corresponding result schemes. The engine uses each new frame to verify and improve the recognition result from the previous frame. This process is continued until a specific result scheme is matched and the result reaches the required stability level.

For some data capture profiles, there are two or more corresponding result schemes. The difference between a data capture profile and a result scheme is the following:

- A data capture profile is the general type of document you specify to the engine — for example, a bank card or some document with a machine-readable zone (MRZ).
- A result scheme is a more specific identifier of the recognized document, returned by the engine — for example, an embossed or unembossed bank card, or a specific MRZ (from a passport, visa, travel document, and so on).

The profile you specify determines which result schemes may be applied during recognition, and the result scheme determines which document fields will be recognized and returned as the result. Supported data capture profiles and corresponding result schemes are detailed in [Data Capture Profiles](#); see also the summary below in [Supported Documents](#).

Note that Real-Time Recognition SDK also allows you to create custom data capture profiles for documents that are not supported out-of-the-box. See [How to Capture a Custom Data Field](#) for the description of this scenario.

Supported Documents

Real-Time Recognition SDK provides predefined data capture profiles for many types of data, including:

- machine-readable zone ([MRZ](#)) in various documents,
- international bank account numbers ([IBAN](#)),
- [bank card](#) details,
- data from [ID documents](#):
 - ID cards,

- passports,
- driver's licenses, and other.

Recognizing with predefined profiles does not require you to set specific rules or specify regular expressions that should match document fields. You simply specify a data capture profile (the general type of a document) and get recognized data with a more specific result scheme identifying the recognized document.

MRZ

Real-Time Recognition SDK can automatically detect and recognize the machine-readable zone (MRZ) on various ID documents: passports, ID cards, travel documents, and other. For details on supported MRZ types and recognized data, see [MRZ profiles](#).



For example, when recognizing a 2-line or 3-line MRZ of a passport or an ID document, Real-Time Recognition SDK will recognize and extract the following data:

- Document type and subtype
- Document number
- The country where the document was issued
- Document holder's first and last name, date of birth, sex and nationality
- Document holder's personal number

- Document expiry date

IBAN

Real-Time Recognition SDK allows to automatically detect and extract international bank account numbers for Germany, France, Spain, and the United Kingdom. IBAN can be extracted from any document.

SEPA-Überweisung/Zahlschein

Für Überweisungen in Deutschland und in andere EU-/EWR-Staaten in Euro.

Name und Sitz des überweisenden Kreditinstituts

BIC

Angaben zum Zahlungsempfänger: Name, Vorname/Firma (max. 27 Stellen bei maschineller Beschriftung max. 35 Stellen)

ABBYY Europe GmbH

IBAN

DE02700800000625550400

(BIC des Kreditinstituts/Zahlungsdienstleisters (8 oder 11 Stellen))

DRESDEFF700

Betrag: Euro, Cent

06

Spenden-/Mitgliedsnummer oder Name des Spenders: (max. 27 Stellen)

ggf. Stichwort

PLZ und Straße des Spenders: (max. 27 Stellen)

Angaben zum Kontoinhaber/Zahler: Name, Vorname/Firma, Ort (max. 27 Stellen, keine Straßen- oder Postfachangaben)

IBAN

D E

Datum

Unterschrift(en)

SPENDE

Bank card

Real-Time Recognition SDK can capture data from debit and credit cards, embossed and unembossed.

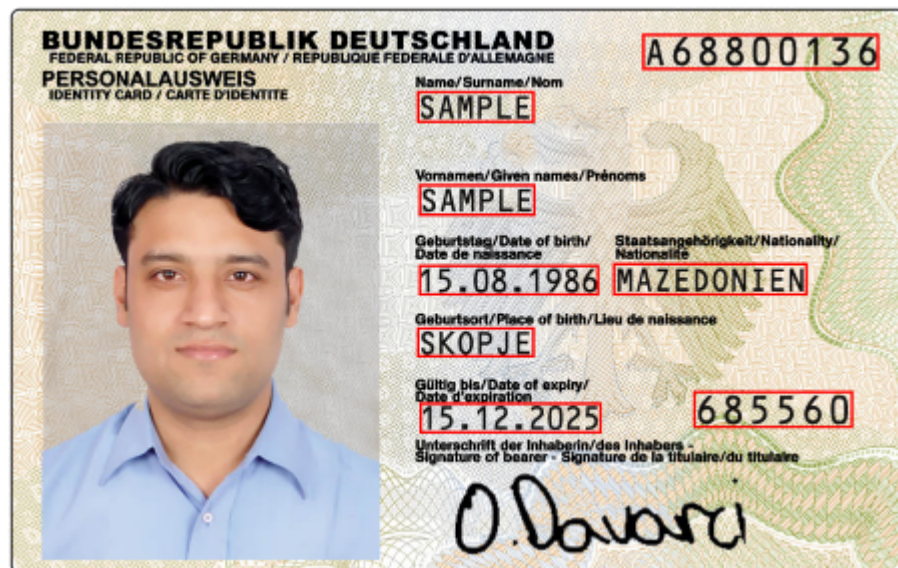




When recognizing a bank card, Real-Time Recognition SDK will detect and extract the card number, cardholder's full name, and date of expiry.

ID documents

Real-Time Recognition SDK can automatically extract data from various ID documents such as ID cards, driver's licenses, passports, and other documents from different countries (see [Data Capture Profiles](#) for detailed information).



For example, when recognizing the front side of a German ID card, Real-Time Recognition SDK will detect and extract the following data:

- Document number
- Document holder's first and last name, nationality, date and place of birth
- RFID number
- Document expiry date

The rest of the data in the German ID card scheme is recognized from the back side of the card; note that the data capture profile you specify and the result data scheme are the same for both card sides.

Implementation

Note: Before you begin, see [How to Add the Library to Your Xcode Project](#).

To implement the document data capture scenario, follow these steps:

1. Implement a delegate conforming to the [RTRDataCaptureServiceDelegate](#) protocol. The delegate will handle messages from the data capture service. Here are the recommendations on what its methods should do:
 - The [onBufferProcessedWithDataScheme:dataFields:resultStatus:](#) method is where you work with the results, display them to the user, etc.
 - The [onError:](#) method is for handling processing errors.
 - The [onWarning:](#) method can optionally be used to show warnings to the user.
2. Create an [RTREngine](#) object using the [sharedEngineWithLicenseData:](#) method. The method requires an [NSData](#) object containing your license data. For example, you can use [dataWithContentsOfFile:](#) to create a data object, then pass this object to the [sharedEngineWithLicenseData:](#) method.
3. Use the [createDataCaptureServiceWithDelegate:profile:](#) method of the [RTREngine](#) object to create a background recognition service. Set the type of document you are going to capture using the *profile* parameter — for example, "IBAN" or "MRZ". The service is created and will further work with this profile (for a full list of available profiles, see [Data Capture Profiles](#)). Only one instance of the service per application is necessary: multiple threads will be started internally.
4. We recommend calling the [setAreaOfInterest:](#) method to specify the rectangular area on the frame where the document is likely to be found. For example, your application may show a highlighted rectangle in the UI into which the end user will try to fit the page they are capturing. The best result is achieved when the area of interest does not touch the boundaries of the frame but has a margin of at least half the size of a typical printed character.
5. Implement a delegate that adopts the [AVCaptureVideoDataOutputSampleBufferDelegate](#) protocol. Instantiate an [AVCaptureSession](#) object, add video input and output and set the video output delegate. When the delegate receives a video frame via the [captureOutput:didOutputSampleBuffer:fromConnection:](#) method, pass this frame on to the data capture service by calling the [addSampleBuffer:](#) method. We recommend using the `AVCaptureSessionPreset1280x720` preset for your [AVCaptureSession](#). Also note that your video output must be configured to use the `kCVPixelFormatType_32BGRA` video pixel format.
6. Process the messages sent by the service to the [RTRDataCaptureServiceDelegate](#) delegate object. The result will be delivered via the [onBufferProcessedWithDataScheme:dataFields:resultStatus:](#) method:
 - an [RTRDataScheme](#) object; use its **id** property to determine what recognition scheme has been applied to the document (some profiles provide two or more recognition result schemes), and its **name** property to display a human-readable description to the user, if needed. For details on recognition schemes corresponding to the profile you selected, see [Data Capture Profiles](#).

Important! If *nil* is passed instead of a valid [RTRDataScheme](#) object, the data scheme has not yet been matched, which may mean that the document the user is trying to recognize is not a passport. In this case, the results are not usable.

- an array of [RTRDataField](#) objects, each representing one of the fields found and recognized. An [RTRDataField](#) object provides the identifier and the human-readable name for the field, the field text, and its location.
- the result stability status, which indicates if the result is available and if it is likely to be improved by adding further frames. Use it to determine whether the application should stop processing and

display the result to the user. We do not recommend using the result until the stability level has reached at least [RTRResultStabilityAvailable](#) and the data scheme has been matched.

7. Save the results for the recognized page. Call the [stopTasks](#) method to stop processing and clean up image buffers. The data capture service keeps its configuration settings (such as area of interest) and necessary resources. The processing will start automatically on the new call to the [addSampleBuffer:](#) method.

See the description of classes and methods in the [API Reference](#) section.

How to Capture a Custom Data Field

This section contains a step-by-step guide to creating an application that captures a single custom data field.

How it Works

With Real-Time Recognition SDK you can create custom data capture profiles for documents that are not supported out-of-the-box. In corresponding result schemes you define custom data fields. (Currently, only one scheme per profile is supported, and only one field may be defined in the scheme). To tell the recognition engine that some text string is a data value (a field value), you will have to specify a regular expression that should match the strings you are looking for. The value may be a date, some code with a known format, and so on: the more specific the data is, the easier it would be to capture it.

This guide uses an alphanumeric code as an example of data that can be captured. Code format is the following: it contains 15 characters that are either digits or capital letters, and the first two characters are always digits. Example: 69KL46D7WF2AR5U.

Implementation

 **Note:** Before you begin, see [How to Add the Library to Your Xcode Project](#).

Implementing the delegates

1. Implement a delegate conforming to the [RTRDataCaptureServiceDelegate](#) protocol. The delegate will handle messages from the data capture service. Here are the recommendations on what its methods should do:
 - The [onBufferProcessedWithDataScheme:dataFields:resultStatus:](#) method is where you work with the results, display them to the user, etc.
 - The [onError:](#) method is for handling processing errors.
 - The [onWarning:](#) method can optionally be used to show warnings to the user.
2. Implement a delegate that adopts the [AVCaptureVideoDataOutputSampleBufferDelegate](#) protocol. Instantiate an [AVCaptureSession](#) object, add video input and output and set the video output delegate. When the delegate receives a video frame via the [captureOutput:didOutputSampleBuffer:fromConnection:](#) method, pass this frame on to the data capture service by calling the [addSampleBuffer:](#) method of the [RTRDataCaptureService](#) object. We recommend using the `AVCaptureSessionPreset1280x720` preset for your [AVCaptureSession](#).
Also note that your video output must be configured to use the `kCVPixelFormatType_32BGRA` video pixel format.

Loading the library and setting up the service

1. Create an [RTREngine](#) object using the [sharedEngineWithLicenseData:](#) method. The method requires an [NSData](#) object containing your license data. For example, you can use [dataWithContentsOfFile:](#) to create a data object, then pass this object to the [sharedEngineWithLicenseData:](#) method.
2. Use the [createDataCaptureServiceWithDelegate:profile:](#) method of the [RTREngine](#) object to create a background recognition service. The *profile* parameter should be left empty. Only one instance of the service per application is necessary: multiple threads will be started internally.
3. Call the [configureDataCaptureProfile](#) method of the [RTRDataCaptureService](#) object to create an [RTRDataCaptureProfileBuilder](#) object. Create a data scheme builder using the [addScheme:](#) method. The scheme builder will allow you to specify a human-readable name for the scheme and to add field definitions.
4. Use the [addField:](#) method to create a new field builder. Use [setName:](#) to add a human-readable field name and [setRegEx:](#) to specify the regular expression that should match the field text. The *regEx* parameter `@ "[0-9]{2}[0-9A-Z]{13}"` — match 2 digits followed by 13 characters which are digits or capital letters.

Note: For details on regular expression syntax supported in ABBYY Real-Time Recognition SDK, see the [Regular Expressions](#) section.

An alphanumeric code needs no additional check besides the regular expression. However, there is the option of implementing a block which would perform additional validation after the data has passed the regular expression check, for example, calculate the field's checksum (see the [setPredicateBlock:](#) method).

5. Call the [checkAndApply](#) method of the [RTRDataCaptureProfileBuilder](#) object to submit the profile for use in the data capture service. If an error is returned at this stage, it is probable the regular expression has mistakes in the syntax, please check it again.
6. We recommend also calling the [setAreaOfInterest:](#) method to specify the rectangular area on the frame where the field is likely to be found. For example, your application may show a highlighted rectangle in the UI into which the end user will try to fit the page they are capturing. The best result is achieved when the area of interest does not touch the boundaries of the frame but has a margin of at least half the size of a typical printed character.

Processing

1. Process the messages sent by the service to the [RTRDataCaptureServiceDelegate](#) delegate object. The result will be delivered via the [onBufferProcessedWithDataScheme:dataFields:resultStatus:](#) method:
 - An [RTRDataScheme](#) object. Its **id** property should return the same identifier you specified in the custom profile.

Important! If *nil* is passed instead of a valid [RTRDataScheme](#) object, the data scheme has not yet been matched, which may mean that there is no data of the required type in the area of interest. In this case, the results are not usable.

- An array containing, in this case, one [RTRDataField](#) object which represents the extracted field. It provides the identifier and the human-readable name for the field, the field text, and its location.
- The result stability status, which indicates if the result is available and if it is likely to be improved by adding further frames. Use it to determine whether the application should stop processing and display the result to the user. We do not recommend using the result until the stability level has reached at least [RTRResultStabilityAvailable](#) and the data scheme has been matched.

2. Save the results. Call the [stopTasks](#) method to stop processing and clean up image buffers. The data capture service keeps its configuration settings (the custom profile, the area of interest) and necessary resources. The processing will start automatically on the new call to the [addSampleBuffer](#) method.

See the description of classes and methods in the [API Reference](#) section.

Code Samples

The ABBYY Real-Time Recognition SDK distribution package includes several code samples that show API usage and provide examples of typical scenarios.

The code samples are found in the root folder of the distribution package. All samples are provided in Objective-C and/or Swift programming languages.

Sample scenario		Folder name	Description
Text Capture		sample-textcapture sample-textcapture-swift	A simple text capture scenario. The only setting available to the user is the text language.
Data Capture	General	sample-datacapture	The general data capture scenario showing how to capture a predefined document and a custom data field.
	Russian Passport	scenarios-datacapture/ru-passport/sample-passport	The data capture scenario for the Russian passport.

Configuring the code samples

The samples should be open and built from the same folder where they are located in the distribution package. To work with any of the code samples you need to do only a little configuring first.

1. Please change the bundle ID before building, modifying or otherwise using any of the samples.
2. All samples expect that the license file (named **AbbyyRtrSdk.license**) is found into the **License** folder located in the distribution package root. Copy your license to this folder and rename the file if necessary (a license obtained from your supplier may have a different name).
You can also change the license file name or path in the sample code: see the RTRViewController implementation.

API Reference

This section describes the Objective-C API of ABBYY Real-Time Recognition SDK.

Classes

- [RTREngine](#)
- [RTRCharInfo](#)
- [RTRDataField](#)
- [RTRDataScheme](#)
- [RTREngineSettings](#)
- [RTRExtendedSettings](#)
- [RTRTextLine](#)
- [RTRTextBlock](#)

Protocols

- [RTRDataCaptureService](#)
- [RTRDataCaptureServiceDelegate](#)
- [RTRDataCaptureProfileBuilder](#)
- [RTRDataFieldBuilder](#)
- [RTRDataSchemeBuilder](#)
- [RTRTextCaptureService](#)
- [RTRTextCaptureServiceDelegate](#)
- [RTRRecognitionService](#)
- [RTRRecognitionServiceDelegate](#)
- [RTRCoreAPI](#)
- [RTRCoreAPIProcessingSettings](#)
- [RTRCoreAPITextRecognitionSettings](#)

Enumerations

- [RTRCallbackWarningCode](#)
- [RTRResultStabilityStatus](#)

RTREngine class

The main ABBYY Real-Time Recognition SDK class which serves to initialize the library and create a background recognition service. It is a singleton class: only one instance may exist at a time. Repeated attempts to create an **RTREngine** object will return the same object.

Properties

Name	Type	Description
extendedSettings	RTREngineSettings , read-only	Additional settings for ABBYY RTR SDK engine which apply to all processing scenarios.

Methods

Name	Description
+ sharedEngineWithLicenseData:	Creates the RTREngine object or returns its existing instance.
- createCoreAPI	Creates a core API object which provides access to low-level single image processing functions.
- createDataCaptureServiceWithDelegate:profile:	Creates a background service for data capture.
- createTextCaptureServiceWithDelegate:	Creates a background service for text recognition.
- languagesAvailableForOCR	Returns the set of languages which can be used for text recognition.

sharedEngineWithLicenseData method of the RTREngine class

Creates or returns the [RTREngine](#) object. Repeated calls to this method will result in the same object instance.

```
+ (instancetype)sharedEngineWithLicenseData:(NSData*)licenseData;
```

Parameters

licenseData

The license data to initialize ABBYY RTR SDK.

Return values

The method returns an instance of the [RTREngine](#) object, or **nil** if object creation failed.

createCoreAPI method of the RTREngine class

Creates a core API object which provides access to low-level single image processing functions.

```
- (id<RTRCoreAPI>)createCoreAPI;
```

Return values

The method returns an instance implementing the [RTRCoreAPI](#) protocol.

createDataCaptureServiceWithDelegate method of the RTREngine class

Creates a background recognition service to run in data capture mode. Only one instance of the service is necessary per application: multiple threads for processing will be started internally.

Before a call to this method, implement the [RTRDataCaptureServiceDelegate](#) protocol to work with processing results and handle errors and warnings.

```
- (id<RTRDataCaptureService>)createDataCaptureServiceWithDelegate:
(id<RTRDataCaptureServiceDelegate>)delegate profile: (NSString*)profile;

- (id<RTRDataCaptureService>)createDataCaptureServiceWithDelegate:
(id<RTRDataCaptureServiceDelegate>)delegate profile: (NSString*)profile
settings: (RTRExtendedSettings*) settings;
```

Parameters

delegate

The delegate object that implements the [RTRDataCaptureServiceDelegate](#) protocol for interacting with the service.

profile

The name of a data capture profile (data scheme) to use. For the available predefined profiles see [Data Capture Profiles](#).

Use an empty string or **nil** to configure your own profile for custom data field capture with the help of the [configureDataCaptureProfile](#) method of the [RTRDataCaptureService](#) protocol.

settings

[optional] Extended service configuration settings represented by an [RTRExtendedSettings](#) object.

Return values

The method returns an instance implementing the [RTRDataCaptureService](#) protocol.

createTextCaptureServiceWithDelegate method of the RTREngine class

Creates a background recognition service to run in text capture mode. Only one instance of the service is necessary per application: multiple threads for processing will be started internally.

Before a call to this method, implement the [RTRTextCaptureServiceDelegate](#) protocol to work with processing results and handle errors and warnings.

```
- (id<RTRTextCaptureService>) createTextCaptureServiceWithDelegate:
(id<RTRTextCaptureServiceDelegate>) delegate;

- (id<RTRTextCaptureService>) createTextCaptureServiceWithDelegate:
(id<RTRTextCaptureServiceDelegate>) delegate
    settings: (RTRExtendedSettings*) settings;
```

Parameters

delegate

The delegate object that implements the [RTRTextCaptureServiceDelegate](#) protocol for interacting with the service.

settings

[optional] The extended service configuration settings represented by an [RTRExtendedSettings](#) object.

Return values

The method returns an instance implementing the [RTRTextCaptureService](#) protocol.

languagesAvailableForOCR method of the RTREngine class

Returns the set of languages which can be used for text recognition in the current application (for which the necessary resources are available).

```
- (NSSet*) languagesAvailableForOCR;
```

Return values

Returns a set of strings containing internal language names. See [Available Languages](#) for a complete list of languages and the corresponding internal names.

RTRDataCaptureService protocol

A background data capture service protocol. Inherits from the [RTRRecognitionService](#) protocol.

This protocol is adopted by the data capture service object returned by the [createDataCaptureServiceWithDelegate:profile:](#) method. Its methods are used to tune the processing settings, pass video frames from the camera to the background processing engine, and release the resources afterwards.

The data capture service requires a delegate that conforms to the [RTRDataCaptureServiceDelegate](#) protocol. The service informs the delegate when the result is ready, sends progress information, warnings and errors.

Methods

Name	Description
- addSampleBuffer:	Sends the video frame obtained from camera to the service. Inherited from the RTRRecognitionService protocol.
- configureDataCaptureProfile	Creates a profile builder object with which you will be able to configure the data capture service to recognize fields of a specific type.
- setAreaOfInterest:	Sets the search area on the frame. Inherited from the RTRRecognitionService protocol.
- stopTasks	Stops processing and releases the resources used by the service. Inherited from the RTRRecognitionService protocol.

addSampleBuffer method of the RTRDataCaptureService protocol

Sends the video frame obtained from camera to the service.

Call this method to pass on the video sample buffer received by an [AVCaptureVideoDataOutputSampleBufferDelegate](#) object via the [captureOutput:didOutputSampleBuffer:fromConnection:](#) method. The service will pick the frames it needs from the sequence of the frames you supply.

Note: The video output must be configured to use the `kCVPixelFormatType_32BGRA` video pixel format. Other pixel formats are currently not supported.

```
- (void)addSampleBuffer:(CMSampleBufferRef) sampleBuffer;
```

Parameters

sampleBuffer

A [CMSampleBuffer](#) object containing the video frame data.

configureDataCaptureProfile method of the RTRDataCaptureService protocol

Creates a profile builder object with which you will be able to configure the data capture service to recognize fields of a specific type. This is the first step for capturing a custom field, without using any of the predefined data capture profiles, and makes sense only if you have left the profile name parameter empty when creating the data capture service.

```
- (id<RTRDataCaptureProfileBuilder>) configureDataCaptureProfile;
```

Return values

The method returns an instance implementing the [RTRDataCaptureProfileBuilder](#) protocol, or **nil** if a profile may not be configured (e.g. you have already specified a profile name on creating the data capture service).

setAreaOfInterest method of the RTRDataCaptureService protocol

Sets the search area on the frame.

The size of the area of interest affects performance and the speed of convergence of the result. The best result is achieved when the area of interest does not touch the boundaries of the frame but has a margin of at least half the size of a typical printed character.

```
- (void) setAreaOfInterest: (CGRect) areaOfInterest;
```

Parameters

areaOfInterest

The rectangle specifying the area of interest. Pass `CGRectZero` as this parameter to select the default area of interest that covers the whole frame (not recommended).

stopTasks method of the RTRDataCaptureService protocol

Stops processing and cleans up image buffers. The service keeps its configuration settings and necessary resources, so the processing will start automatically when the service receives a new frame.

```
- (void) stopTasks;
```


RTRDataCaptureServiceDelegate protocol

The protocol for a delegate object to receive results, status information, warnings and errors from the data capture service. Inherits from the [RTRRecognitionServiceDelegate](#) protocol. The methods are to be implemented on the client side.

Methods

Name	Description
- onBufferProcessedWithDataScheme:dataFields:resultStatus:	Notifies the delegate that a frame was recognized, delivers the result and status information.
- onError:	Notifies the delegate about an error. Inherited from the RTRRecognitionServiceDelegate protocol.
- onWarning:	Optional method. Informs the delegate about warnings from the service. Inherited from the RTRRecognitionServiceDelegate protocol.

onBufferProcessedWithDataScheme method of the RTRDataCaptureServiceDelegate protocol

Notifies the delegate that a frame was recognized, delivers the result and its stability status.

The result stability status should be used to determine if the accuracy is high enough for the result to be used for any practical purposes. We recommend not to use the data in any way until the stability level has reached at least [RTRResultStabilityAvailable](#) and the data scheme has been matched. When stability of the result has reached the desired level, the service may be stopped by calling the [stopTasks](#) method of the [RTRDataCaptureService](#) protocol.

This method is to be implemented on the client side. The implementation of this method will probably contain assessing the result plausibility, displaying the results to the user or using them in any other way you need.

```
- (void)onBufferProcessedWithDataScheme:(RTRDataScheme*) dataScheme
    dataFields:(NSArray<RTRDataField*>*) dataFields
    resultStatus:(RTRResultStabilityStatus) resultStatus;
```

Parameters

dataScheme

Information on the data scheme applied to the recognized frame, represented by a [RTRDataScheme](#) object.

! Important! If *nil* is passed instead of a valid [RTRDataScheme](#) object, the data scheme has not yet been matched, which may mean that the document the user is trying to recognize does not fit the data capture profile with which the data service was created. In this case, the results are not usable.

dataFields

The result as an array of data fields, represented by [RTRDataField](#) objects.

resultStatus

The estimate of how stable the result is, represented by an [RTRResultStabilityStatus](#) enumeration constant. It is not guaranteed that it ever reaches the desired level for a particular scene.

onError method of the RTRDataCaptureServiceDelegate protocol

Notifies the delegate about an error.

```
- (void)onError:(NSError*)error;
```

Parameters

error

The error that has occurred.

onWarning method of the RTRDataCaptureServiceDelegate protocol

Informs the delegate about warnings. This method is optional.

```
- (void)onWarning:(RTRCallbackWarningCode)warningCode;
```

Parameters

warningCode

The warning that has occurred, represented by an [RTRCallbackWarningCode](#) enumeration constant.

RTRDataCaptureProfileBuilder protocol

The protocol for a builder object which allows you to configure a custom data capture profile.

Methods

Name	Description
- checkAndApply	Submits the configured profile for use in the data capture service.
- addScheme:	Creates a new scheme in the data capture profile. Using the scheme builder you will then be able to add the data fields and define the rules to which they should conform.
- setRecognitionLanguages:	Sets the languages to be used for field recognition.

checkAndApply method of the RTRDataCaptureProfileBuilder protocol

Submits the configured profile for use in the data capture service.

This method should be called after all your modifications to the profile are completed. If this method call is successful, the service is ready to capture custom data fields as specified by the profile.

```
- (NSError*) checkAndApply;
```

Return values

The method returns **nil** if the profile was applied successfully. If there were some problems (for example, the regular expression is not valid), the error object is returned instead.

addScheme method of the RTRDataCaptureProfileBuilder protocol

Creates a new scheme in the data capture profile. Using the scheme builder you will then be able to add the data fields and define the rules to which they should conform.

Note: Currently, only one scheme may exist in the profile, and only one field may be defined in the scheme.

```
- (id<RTRDataSchemeBuilder>) addScheme: (NSString*) id;
```

Parameters

id

The scheme identifier.

Return values

The method returns an instance implementing the [RTRDataSchemeBuilder](#) protocol.

setRecognitionLanguages method of the RTRDataCaptureProfileBuilder protocol

Sets the languages to be used for recognition.

By default, only the English language is set. Setting the correct languages for your text will improve recognition accuracy. However, setting too many languages may decrease performance.

Use the [languagesAvailableForOCR](#) method to check which languages are supported in your application.

```
- (id<RTRDataCaptureProfileBuilder>) setRecognitionLanguages:(NSSet*)
recognitionLanguages;
```

Parameters

recognitionLanguages

The set of languages to be used for recognition, each language represented by its internal name as a string. See [Available Languages](#) for the list of languages and corresponding internal names.

Return values

The method returns the same [RTRDataCaptureProfileBuilder](#) object on which it was called.

RTRDataSchemeBuilder protocol

The protocol for a scheme builder object which lets you add fields to the scheme.

Note: Currently, only one scheme may exist in the profile, and only one field may be defined in the scheme.

Methods

Name	Description
- addField:	<p>Adds a new field.</p> <p>The rules to which the data should conform may be specified later via the field builder object.</p>

Name	Description
- setName:	Sets the scheme name.

addField method of the RTRDataSchemeBuilder protocol

Adds a new field.

The rules to which the data should conform may be specified later via the field builder object.

Note: *Currently, only one scheme may exist in the profile, and only one field may be defined in the scheme.*

```
- (id<RTRDataFieldBuilder>) addField: (NSString*) id;
```

Parameters

id

The field identifier.

Return values

The method returns an instance implementing the [RTRDataFieldBuilder](#) protocol.

setName method of the RTRDataSchemeBuilder protocol

Sets the scheme name.

```
- (id<RTRDataSchemeBuilder>) setName: (NSString*) name;
```

Parameters

name

The new scheme name.

Return values

The method returns the same [RTRDataSchemeBuilder](#) object on which it was called.

RTRDataFieldBuilder protocol

The protocol for a field builder object which allows you to set the name and rules for the data field.

Properties

Name	Type	Description
id	NSString*, read-only	Field identifier.

Methods

Name	Description
- setName:	Sets a human-readable name for the field.
- setPredicateBlock:	Sets the user-implemented validation block which will be called for further verification of the data (e.g. calculating the checksum) after it has passed the regular expression check.
- setRegex:	Sets the regular expression to match the field data.

setName method of the RTRDataFieldBuilder protocol

Sets the field name.

```
- (id<RTRDataFieldBuilder>) setName: (NSString*) name;
```

Parameters

name

The new field name.

Return values

The method returns the same [RTRDataFieldBuilder](#) object on which it was called.

setPredicateBlock method of the RTRDataFieldBuilder protocol

Sets the validation block which will be called for further verification of the data (e.g. calculating the checksum) after it has passed the regular expression check.

```
- (id<RTRDataFieldBuilder>) setPredicateBlock: (RTRFieldPredicateBlock) predicateBlock;
```

Parameters

predicateBlock

The user-implemented validation block of the type [RTRFieldPredicateBlock](#). May be **nil**, which means the data will not be verified.

Return values

The method returns the same [RTRDataFieldBuilder](#) object on which it was called.

setRegex method of the RTRDataFieldBuilder protocol

Sets the regular expression that should match the field's text.

Note: For details on regular expression syntax supported in ABBYY Real-Time Recognition SDK, see the [Regular Expressions](#) section.

Important! If the field contains two or more matches for the specified regular expression, the engine will extract and return only the first one.

```
- (id<RTRDataFieldBuilder>) setRegex: (NSString*) regex;
```

Parameters

regex

A string describing the regular expression.

Return values

The method returns the same [RTRDataFieldBuilder](#) object on which it was called.

RTRFieldPredicateBlock

This is a type definition for a user-defined validation block which will be called for further verification of the data (e.g. calculating the checksum) after it has passed the regular expression check.

A typical use for the validation block would be to calculate a checksum.

```
typedef BOOL (^RTRFieldPredicateBlock)(NSString* value);
```

Parameters

value

The string with the recognized text of the field.

Return values

The block must return TRUE if the data is correct, FALSE otherwise.

RTRTextCaptureService protocol

A background text capture service protocol. Inherits from the [RTRRecognitionService](#) protocol.

This protocol is adopted by the text capture service object returned by the [createTextCaptureServiceWithDelegate:](#) method. Its methods are used to tune the processing settings, pass video frames from the camera to the background processing engine, and release the resources afterwards.

The text capture service requires a delegate that conforms to the [RTRTextCaptureServiceDelegate](#) protocol. The service informs the delegate when the result is ready, sends progress information, warnings and errors.

Methods

Name	Description
- addSampleBuffer:	Sends the video frame obtained from camera to the service. Inherited from the RTRRecognitionService protocol.
- setAreaOfInterest:	Sets the search area on the frame. Inherited from the RTRRecognitionService protocol.
- setRecognitionLanguages:	Sets the languages to be used for recognition.
- setTranslationDictionary:	Sets the name of the translation dictionary.
- stopTasks	Stops processing and releases the resources used by the recognition service. Inherited from the RTRRecognitionService protocol.

addSampleBuffer method of the RTRTextCaptureService protocol

Sends the video frame obtained from camera to the service.

Call this method to pass on the video sample buffer received by an [AVCaptureVideoDataOutputSampleBufferDelegate](#) object via the [captureOutput:didOutputSampleBuffer:fromConnection:](#) method. The service will pick the frames it needs from the sequence of the frames you supply.

Note: *The video output must be configured to use the kCVPixelFormatType_32BGRA video pixel format. Other pixel formats are currently not supported.*

```
- (void)addSampleBuffer:(CMSampleBufferRef) sampleBuffer;
```

Parameters

sampleBuffer

A [CMSampleBuffer](#) object containing the video frame data.

setAreaOfInterest method of the RTRTextCaptureService protocol

Sets the search area on the frame.

The size of the area of interest affects performance and the speed of convergence of the result. The best result is achieved when the area of interest does not touch the boundaries of the frame but has a margin of at least half the size of a typical printed character.

```
- (void)setAreaOfInterest:(CGRect) areaOfInterest;
```

Parameters

areaOfInterest

The rectangle specifying the area of interest. Pass CGRectZero as this parameter to select the default area of interest that covers the whole frame (not recommended).

setRecognitionLanguages method of the RTRTextCaptureService protocol

Sets the languages to be used for recognition.

By default, only the English language is set. Setting the correct languages for your text will improve recognition accuracy. However, setting too many languages may decrease performance.

Use the [languagesAvailableForOCR](#) method to check which languages are supported in your application.

```
- (void)setRecognitionLanguages:(NSSet*) recognitionLanguages;
```

Parameters

recognitionLanguages

The set of languages to be used for recognition, each language represented by its internal name as a string. See [Available Languages](#) for the list of languages and corresponding internal names.

setTranslationDictionary method of the RTRTextCaptureService protocol

Sets current translation dictionary, attaches or detaches a dictionary to enable or disable translation. By default, translation is disabled and no translation dictionary is used.

Translation dictionaries should be put in the **Translation** subfolder of the application bundle. Some dictionaries are supplied with the distribution. See [Available Translation Dictionaries](#) for a full list.

! Important! *Calling this method with a dictionary name attaches this translation dictionary (or changes the one currently attached). With a dictionary attached, the recognized text will be translated automatically, and the [onBufferProcessedWithTextLines:resultStatus:](#) method will return the result in the target language. The result of recognition in the source language will be unavailable. To detach a dictionary, pass a **nil** argument.*

```
- (void)setTranslationDictionary:(NSString*)dictionaryName;
```

Parameters

dictionaryName

The name of the translation dictionary file, without extension. Can also be **nil** to detach the current dictionary.

stopTasks method of the RTRTextCaptureService protocol

Stops processing and cleans up image buffers. The service keeps its configuration settings and necessary resources, so the processing will start automatically when the service receives a new frame.

```
- (void)stopTasks;
```

RTRTextCaptureServiceDelegate protocol

The protocol for a delegate object to receive results, status information, warnings and errors from the text capture service. Inherits from the [RTRRecognitionServiceDelegate](#) protocol. The methods are to be implemented on the client side.

Methods

Name	Description
- onBufferProcessedWithTextLines:resultStatus:	Notifies the delegate that a frame was recognized, delivers the result and status information.
- onError:	Notifies the delegate about an error. Inherited from the RTRRecognitionServiceDelegate protocol.
- onWarning:	Optional method. Informs the delegate about warnings from the service. Inherited from the RTRRecognitionServiceDelegate protocol.

onBufferProcessedWithTextLines method of the RTRTextCaptureServiceDelegate protocol

Notifies the delegate that a frame was recognized, delivers the result and its stability status.

The result stability status should be used to determine if the accuracy is high enough for the result to be used for any practical purposes. We recommend not to use the data in any way until the stability level has reached at least [RTRResultStabilityAvailable](#). When stability of the result has reached the desired level, the service may be stopped by calling the [stopTasks](#) method of the [RTRTextCaptureService](#) protocol.

This method is to be implemented on the client side. The implementation of this method will probably contain assessing the result plausibility, displaying the results to the user or using them in any way you need.

```
- (void)onBufferProcessedWithTextLines:(NSArray*)textLines resultStatus:
(RTRResultStabilityStatus)resultStatus;
```

Parameters

textLines

The result as an array of text lines, represented by [RTRTextLine](#) objects.

resultStatus

The estimate of how stable the result is, represented by an [RTRResultStabilityStatus](#) enumeration constant. It is not guaranteed that it ever reaches the desired level for a particular scene.

onError method of the RTRTextCaptureServiceDelegate protocol

Notifies the delegate about an error.

```
- (void)onError:(NSError*)error;
```

Parameters

error

The error that has occurred.

onWarning method of the RTRTextCaptureServiceDelegate protocol

Informs the delegate about warnings. This method is optional.

```
- (void)onWarning:(RTRCallbackWarningCode)warningCode;
```

Parameters

warningCode

The warning that has occurred, represented by an [RTRCallbackWarningCode](#) enumeration constant.

RTRRecognitionService protocol

The base background recognition service protocol, inherited by the [RTRDataCaptureService](#) and [RTRTextCaptureService](#) protocols.

Requires a delegate that conforms to the [RTRRecognitionServiceDelegate](#) protocol.

Methods

Name	Description
- addSampleBuffer:	Sends the video frame obtained from camera to the service.
- setAreaOfInterest:	Sets the search area on the frame.
- stopTasks	Stops processing and releases the resources used by the service.

addSampleBuffer method of the RTRRecognitionService protocol

Sends the video frame obtained from camera to the service.

Call this method to pass on the video sample buffer received by an [AVCaptureVideoDataOutputSampleBufferDelegate](#) object via the [captureOutput:didOutputSampleBuffer:fromConnection:](#) method. The service will pick the frames it needs from the sequence of the frames you supply.

! Note: *The video output must be configured to use the kCVPixelFormatType_32BGRA video pixel format. Other pixel formats are currently not supported.*

```
- (void)addSampleBuffer:(CMSampleBufferRef) sampleBuffer;
```

Parameters

sampleBuffer

A [CMSampleBuffer](#) object containing the video frame data.

setAreaOfInterest method of the RTRRecognitionService protocol

Sets the search area on the frame.

The size of the area of interest affects performance and the speed of convergence of the result. The best result is achieved when the area of interest does not touch the boundaries of the frame but has a margin of at least half the size of a typical printed character.

```
- (void)setAreaOfInterest:(CGRect) areaOfInterest;
```

Parameters

areaOfInterest

The rectangle specifying the area of interest. Pass CGRectZero as this parameter to select the default area of interest that covers the whole frame (not recommended).

stopTasks method of the RTRRecognitionService protocol

Stops processing and cleans up image buffers. The service keeps its configuration settings and necessary resources, so the processing will start automatically when the service receives a new frame.

```
- (void)stopTasks;
```

RTRRecognitionServiceDelegate protocol

The base protocol for a recognition service delegate, inherited by the [RTRDataCaptureServiceDelegate](#) and [RTRTextCaptureServiceDelegate](#) protocols. The methods are to be implemented on the client side.

Methods

Name	Description
- onError:	Notifies the delegate about an error.
- onWarning:	Optional method. Informs the delegate about warnings from the service.

onError method of the RTRRecognitionServiceDelegate protocol

Notifies the delegate about an error.

```
- (void)onError:(NSError*)error;
```

Parameters

error

The error that has occurred.

onWarning method of the RTRRecognitionServiceDelegate protocol

Informs the delegate about warnings. This method is optional.

```
- (void)onWarning:(RTRCallbackWarningCode)warningCode;
```

Parameters

warningCode

The warning that has occurred, represented by an [RTRCallbackWarningCode](#) enumeration constant.

RTRCoreAPI protocol

Provides access to low-level functions for single image processing. Useful when you need to recognize an image that was not taken by the camera of the device on which the application operates — for example, scans sent by email.

Properties

Name	Type	Description
processingSettings	RTRCoreAPIProcessingSettings	Provides access to the general processing settings common for different scenarios.
textRecognitionSettings	RTRCoreAPITextRecognitionSettings	Provides access to the settings of text recognition.

Methods

Name	Description
- recognizeText:onProgress:onTextOrientationDetected:error:	Performs recognition of a single image.

recognizeText method of the RTRCoreAPI protocol

Performs recognition of a single image.

```
- (NSArray*) recognizeText:(UIImage*) image
    onProgress:(BOOL(^)(int percentage, RTRCallbackWarningCode
warningCode)) progressCallback
    onTextOrientationDetected:(void(^)(int angle))
textOrientationDetectedCallback
    error:(__autoreleasing NSError**) error;
```

Parameters

image

The image to be recognized.

onProgress

The callback informing you of approximate percentage of operation completed, and any warning that occurred (represented by an [RTRCallbackWarningCode](#) constant). This callback can also be used to interrupt processing: return TRUE if you wish to terminate the current operation, FALSE to continue.

onTextOrientationDetected

The callback informing you when the image orientation is detected. The *angle* parameter can take values of 0, 90, 180, and 270, and means the angle on which the image should be rotated to get normal orientation.

error

The error callback.

Return values

The method returns an array of [RTRTextBlock](#) objects which contain the results of recognition for the text areas found on the image.

RTRCoreAPIProcessingSettings protocol

General processing settings common for different scenarios.

Properties

Name	Type	Description
processingThreadsCount	NSInteger	<p>Specifies the number of threads to be used for processing.</p> <p>The default value of this property is 0, which means that the number of processing threads will be determined automatically.</p>

RTRCoreAPITextRecognitionSettings protocol

Settings specific for text recognition scenario.

Methods

Name	Description
- setAreaOfInterest:	Sets the search area on the image.

Name	Description
- setRecognitionLanguages:	Sets the languages to be used for recognition.

setAreaOfInterest method of the RTRCoreAPITextRecognitionSettings protocol

Sets the search area on the image.

```
- (void)setAreaOfInterest:(CGRect)areaOfInterest;
```

Parameters

areaOfInterest

The rectangle specifying the area of interest. Pass CGRectZero as this parameter to select the default area of interest that covers the whole frame.

setRecognitionLanguages method of the RTRCoreAPITextRecognitionSettings protocol

Sets the languages to be used for recognition.

By default, only the English language is set. Setting the correct languages for your text will improve recognition accuracy. However, setting too many languages may decrease performance.

Use the [languagesAvailableForOCR](#) method to check which languages are supported in your application.

```
- (void)setRecognitionLanguages:(NSSet*)recognitionLanguages;
```

Parameters

recognitionLanguages

The set of languages to be used for recognition, each language represented by its internal name as a string. See [Available Languages](#) for the list of languages and corresponding internal names.

RTREngineSettings class

Additional settings for ABBYY RTR SDK engine. They apply to all processing scenarios.

Properties

Name	Type	Description
externalAssetsPath	NSString*	<p>The additional path to search for framework data.</p> <p>The program will search for any resource file it needs first in the bundle root, then in the specified custom folder, each time looking in the corresponding subfolder. For example, it will try to locate a pattern file (*.rom) like this:</p> <ol style="list-style-type: none"> 1) in <bundle path>/Patterns 2) in <custom search path>/Patterns 3) if the file is not found, an error will be returned

RTRExtendedSettings class

Extended service configuration settings. Intended for advanced users: most common scenarios will work with the default settings.

Properties

Name	Type	Description
CJKVerticalTextEnabled	BOOL	<p>Enables or disables vertical writing direction for Chinese, Japanese, and Korean languages.</p> <p>The default value of this property is NO (disabled).</p>
frameMergingEnabled	BOOL	<p>Enables or disables merging of recognition results. Frame merging is one of the key features of RTR SDK, which improves recognition accuracy (see Key features).</p> <p>The default value of this property is YES (enabled).</p>
processingThreadsCount	NSInteger	<p>The number of processing threads to be used by the service. Up to 16 threads are allowed.</p>

Name	Type	Description
		<p>Set to 0 to determine the number of threads automatically.</p> <p>The default value of this property is 0.</p>

RTRCharInfo class

Extended information about the character formatting.

! Important! *This class is reserved for future use.*

Properties

Name	Type	Description
backgroundColor	NSInteger, read-only	<p>The color of the background.</p> <p>! Note: The int value is calculated from the RGB triplet using the formula: (red value) + (256 x green value) + (65536 x blue value), where red value is the first triplet component, green value is the second triplet component, blue value is the third triplet component. For example, the int value of the color white equals 16777215.</p>
foregroundColor	NSInteger, read-only	The color of the symbol.
quadrangle	NSArray<NSValue*>, read-only	<p>The four vertex points of the bounding quadrangle. The vertices are indexed clockwise starting from the bottom left.</p> <p>Get the NSValue.CGPointValue property to obtain point coordinates as a CGPoint.</p>
rect	CGRect, read-only	The bounding rectangle.

RTRDataField class

A recognized data field. Provides field contents, location and data scheme information.

Note that a field may have several components — for example, it can contain two or more words. Component details are available from the **components** array. Each element of this array is an [RTRTextLine](#) object with its own **text** property (for example, a word) and **quadrangle** property (the bounding quadrangle of this component). The field's **text** property contains its entire text, and the field's **quadrangle** property represents the whole area of a field: this quadrangle encloses the quadrangles of all components.

The **components** array always contains at least one element. When a field contains only one component, the **text** and **quadrangle** properties of the field and this component are identical.

Properties

Name	Type	Description
id	NSString*, read-only	The internal field identifier. Can be one of the predefined fields listed in Data Capture Profiles or the custom field identifier that you specified when adding the field in RTRDataSchemeBuilder .
name	NSString*, read-only	The name of the field as seen in the document or specified in the custom data capture profile.
quadrangle	NSArray<NSValue*>*, read-only	The four vertex points of the bounding quadrangle. The vertices are indexed clockwise starting from the bottom left. Get the NSValue.CGPointValue property to obtain point coordinates as a CGPoint .
text	NSString*, read-only	The recognized field contents.
components	NSArray<RTRTextLine*>*, read-only	Field components represented by RTRTextLine objects. If the field has only one component, this array contains one element.

RTRDataScheme class

Information on the data scheme applied to the recognized frame.


Properties

Name	Type	Description
id	NSString, read-only	The internal scheme identifier. Can be one of the predefined data schemes listed in Data Capture Profiles or the custom scheme identifier that you specified when creating the scheme in the RTRDataCaptureProfileBuilder .
name	NSString, read-only	The name of the scheme. If you are using a custom data capture profile, this is the same name you specified when creating the scheme in the RTRDataCaptureProfileBuilder .

RTRTextLine class

A line of recognized text; the location and additional information are also available.

Properties

Name	Type	Description
charsInfo	NSArray*, read-only	Extended characters' information as an array of RTRCharInfo objects.  Important! This property is reserved for future use.
quadrangle	NSArray<NSValue*>, read-only	The four vertex points of the bounding quadrangle. The vertices are indexed clockwise starting from the bottom left. Get the NSValue.CGPointValue property to obtain point coordinates as a CGPoint .
rect	CGRect, read-only	The bounding rectangle.
text	NSString*, read-only	The recognized text.

RTRTextBlock class

A block of recognized text, containing an array of text lines found in one text area on the image.

Properties

Name	Type	Description
textLines	NSArray*, read-only	The array of RTRTextLine objects representing the lines of recognized text.

RTRCallbackWarningCode enumeration

A warning that occurred during processing.

```
typedef NS_ENUM(NSInteger, RTRCallbackWarningCode) {
    RTRCallbackWarningNoWarning,
    RTRCallbackWarningRecognitionIsSlow,
    RTRCallbackWarningProbablyLowQualityImage,
    RTRCallbackWarningProbablyWrongLanguage,
    RTRCallbackWarningWrongLanguage,
    RTRCallbackWarningTextTooSmall
};
```

Constants

Name	Description
RTRCallbackWarningProbablyLowQualityImage	The image quality (contrast, resolution) may not be good enough for accurate results.
RTRCallbackWarningProbablyWrongLanguage	The recognition language may be specified incorrectly.
RTRCallbackWarningRecognitionIsSlow	Recognition takes too much time. Check if there is some problem.
RTRCallbackWarningTextTooSmall	The text is too small. Advise the end user to move the camera closer or zoom in.
RTRCallbackWarningWrongLanguage	The recognition language is specified incorrectly.

RTRResultStabilityStatus enumeration

Result stability status: the estimate of how stable the result is, and whether it is likely to be improved by adding new frames. We do not recommend using the results in any way while stability is below `RTRResultStabilityAvailable`.

```
typedef NS_ENUM(NSInteger, RTRResultStabilityStatus) {
    RTRResultStabilityNotReady,
    RTRResultStabilityTentative,
    RTRResultStabilityVerified,
    RTRResultStabilityAvailable,
    RTRResultStabilityTentativelyStable,
    RTRResultStabilityStable
};
```

Constants

Name	Description
<code>RTRResultStabilityNotReady</code>	No content available.
<code>RTRResultStabilityTentative</code>	Content detected on a single frame.
<code>RTRResultStabilityVerified</code>	Content verified: matching content found in at least two frames.
<code>RTRResultStabilityAvailable</code>	Matching content found in three or more frames. The content is recognized and the result is available, though the result can still vary with the addition of new frames.
<code>RTRResultStabilityTentativelyStable</code>	The result has been stable in the last two frames.
<code>RTRResultStabilityStable</code>	The result has been stable in the last three or more frames.

Specifications

This section describes the technical requirements and capabilities of ABBYY Real-Time Recognition SDK.

Device Requirements

iOS version: 8.x or later

Supported devices:

- iPhone 5 or newer
- iPad Pro
- iPad (4th generation)
- iPad Air or newer
- iPad mini or newer

Memory requirements

Library operation in the text capture scenario takes up to:

- for texts in alphabetic languages — **40 MB RAM**
- for texts in Chinese, Japanese, or Korean languages — **70 MB RAM**

Library operation in the data capture scenario (for example, passport recognition) takes up to **105 MB RAM**.

Distribution Kit

ABBYY Real-Time Recognition SDK distribution pack includes the library, various resource files, samples and documentation. This section will help you determine which of the files to include when distributing your own application, and minimize the size of the final package.

The following folders contain files for development purposes only, not to be distributed:

Folder	File name	Description
	Readme.html	Readme file.
help	RtrSdkDevelopersGuide.pdf	This Developer's Guide.
sample-datacapture	All files in this folder.	The sample code in Objective-C implementing a data capture scenario where the capture rule is specified by a regular expression.
sample-textcapture	All files in this folder.	The sample code in Objective-C implementing a simple text capture

Folder	File name	Description
		scenario.
sample-textcapture-swift	All files in this folder.	The sample code in Swift implementing a simple text capture scenario.
scenarios-datacapture/ru-passport/sample-passport	All files in this folder. Note that the scenarios-datacapture folder also contains some redistributable assets.	The sample code in Objective-C implementing a data capture scenario for Russian internal passport.

The files in the **libs**, **assets**, and **notice** folders are intended for the final distribution of your application. The table below shows what files you should distribute depending on your needs.

Folder	File name	Description	Distribution
libs	AbbyyRtrSDK.framework	The ABBYY Real-Time Recognition SDK framework.	Always required.
assets/dictionaries	Brazil.edc	Portuguese (Brazil) language recognition dictionary.	Only those dictionaries that correspond to the languages you will work with.
	Bulgar.edc	Bulgarian language recognition dictionary.	
	Czech.edc	Czech language recognition dictionary.	
	Danish.edc	Danish language recognition dictionary.	
	Dutch.edc	Dutch (Netherlands) language recognition dictionary.	

Folder	File name	Description	Distribution
	English.edc	English language recognition dictionary.	
	Eston.edc	Estonian language recognition dictionary.	
	Finnish.edc	Finnish language recognition dictionary.	
	Flemish.edc	Dutch (Belgium) language recognition dictionary.	
	French.edc	French language recognition dictionary.	
	German.edc	German (old spelling) language recognition dictionary.	
	GermanNS.edc	German (new spelling) language recognition dictionary.	
	Greek.edc	Greek language recognition dictionary.	
	Indones.edc	Indonesian language recognition dictionary.	
	Italian.edc	Italian language recognition dictionary.	
	NorwBok.edc	Norwegian (Bokmal) language recognition dictionary.	
	NorwNyn.edc	Norwegian (Nynorsk) language recognition	

Folder	File name	Description	Distribution
		dictionary.	
	Polish.edc	Polish language recognition dictionary.	
	Portug.edc	Portuguese (Portugal) language recognition dictionary.	
	Russian.edc	Russian language recognition dictionary.	
	Spanish.edc	Spanish language recognition dictionary.	
	Swedish.edc	Swedish language recognition dictionary.	
	Turkish.edc	Turkish language recognition dictionary.	
	Ukrain.edc	Ukrainian language recognition dictionary.	
scenarios-datacapture/ru-passport/assets/dictionaries	Passport_RU.edc Passport_RU_Numbers.edc	Dictionaries for Russian passport recognition.	Required for Russian passport recognition.
assets/patterns	ChineseJapanese.rom	Recognition database for Chinese, Japanese, and Korean languages.	Required for recognition of texts in Chinese, Japanese and Korean languages.
	European.rom	Recognition database for all supported recognition languages except Chinese, Japanese, and Korean.	Required for all recognition languages except Chinese, Japanese and Korean.

Folder	File name	Description	Distribution
	FindText.rom	Recognition database for all languages.	Always required.
	KoreanSpecific.rom	Recognition database for Korean language.	Required for recognition of texts in Korean language.
scenarios-datacapture/assets/patterns	MRZ.rom	Recognition database for MRZ of the passport.	Required for MRZ data recognition.
	MRZ_EDC.rom	Extended MRZ recognition database for various document types.	Required for recognizing MRZ and MRZ-like zone data on supported documents (see Data Capture Profiles for details). Note that this file may be not available in your distribution, depending on the type of your license.
	BankCards_EDC.rom	Bank card recognition database.	Required for bank card recognition. ! <i>Note: This file may be not available in your distribution, depending on the type of your license.</i>
	ID_AE_EDC.rom	Recognition database for UAE documents.	Only the databases for the countries you are going to support are required.
	ID_AT_EDC.rom	Recognition database for Austrian documents.	! <i>Note: These files may be not available in your distribution, depending on the type of your license.</i>

Folder	File name	Description	Distribution
	ID_BE_EDC.rom	Recognition database for Belgium documents.	
	ID_BG_EDC.rom	Recognition database for Bulgarian documents.	
	ID_BH_EDC.rom	Recognition database for Bahrain documents.	
	ID_BY_EDC.rom	Recognition database for Belarusian documents.	
	ID_CH_EDC.rom	Recognition database for Swiss documents.	
	ID_CN_EDC.rom	Recognition database for Chinese documents.	
	ID_CZ_EDC.rom	Recognition database for Czech documents.	
	ID_DE_EDC.rom	Recognition database for German documents.	
	ID_EE_EDC.rom	Recognition database for Estonian documents.	
	ID_ES_EDC.rom	Recognition database for Spanish documents.	
	ID_FI_EDC.rom	Recognition database for Finnish documents.	

Folder	File name	Description	Distribution
	ID_IL_EDC.rom	Recognition database for Israeli documents.	
	ID_IN_EDC.rom	Recognition database for Indian documents.	
	ID_IT_EDC.rom	Recognition database for Italian documents.	
	ID_JP_EDC.rom	Recognition database for Japanese documents.	
	ID_KG_EDC.rom	Recognition database for Kyrgyzstani documents.	
	ID_KW_EDC.rom	Recognition database for Kuwait documents.	
	ID_KZ_EDC.rom	Recognition database for Kazakhstan documents.	
	ID_LV_EDC.rom	Recognition database for Latvian documents.	
	ID_MY_EDC.rom	Recognition database for Malaysian documents.	
	ID_PH_EDC.rom	Recognition database for Philippine documents.	
	ID_PL_EDC.rom	Recognition database for Polish documents.	

Folder	File name	Description	Distribution
	ID_PT_EDC.rom	Recognition database for Portuguese documents.	
	ID_RO_EDC.rom	Recognition database for Romanian documents.	
	ID_RU_EDC.rom	Extended recognition database for Russian documents.	
	ID_SE_EDC.rom	Recognition database for Swedish documents.	
	ID_SG_EDC.rom	Recognition database for Singapore documents.	
	ID_SY_EDC.rom	Recognition database for Syrian documents.	
	ID_TR_EDC.rom	Recognition database for Turkish documents.	
	ID_UK_EDC.rom	Recognition database for British documents.	
	ID_US_EDC.rom	Recognition database for USA documents.	
scenarios-datacapture/ru-passport/assets/patterns	Passport_RU.rom	Recognition database for Russian passports.	Required for Russian passport recognition.
assets/translation	Menu_CH-EN.trdic	Dictionary for translating menus	The files contain translation dictionaries.

Folder	File name	Description	Distribution
		from Chinese to English.	You need only the files for the language pairs you use.
	Menu_DE-EN.trdic	Dictionary for translating menus from German to English.	
	Menu_EN-CH.trdic	Dictionary for translating menus from Chinese to English.	
	Menu_EN-DE.trdic	Dictionary for translating menus from English to German.	
	Menu_EN-ES.trdic	Dictionary for translating menus from English to Spanish.	
	Menu_EN-FR.trdic	Dictionary for translating menus from English to French.	
	Menu_EN-ID.trdic	Dictionary for translating menus from English to Indonesian.	
	Menu_EN-JP.trdic	Dictionary for translating menus from English to Japanese.	
	Menu_EN-PL.trdic	Dictionary for translating menus from English to Polish.	

Folder	File name	Description	Distribution
	Menu_EN-PTBR.trdic	Dictionary for translating menus from English to Portuguese (Brazil).	
	Menu_EN-RU.trdic	Dictionary for translating menus from English to Russian.	
	Menu_ES-EN.trdic	Dictionary for translating menus from Spanish to English.	
	Menu_FR-EN.trdic	Dictionary for translating menus from French to English.	
	Menu_ID-EN.trdic	Dictionary for translating menus from Indonesian to English.	
	Menu_JP-EN.trdic	Dictionary for translating menus from Japanese to English.	
	Menu_PL-EN.trdic	Dictionary for translating menus from Polish to English.	
	Menu_PTBR-EN.trdic	Dictionary for translating menus from Portuguese (Brazil) to English.	
	Menu_RU-EN.trdic	Dictionary for translating menus	

Folder	File name	Description	Distribution
		from Russian to English.	
notice	All files in this folder.	Third party software components information and licenses.	These files have to be redistributed.

Available Languages

This section lists the languages available for text processing with ABBYY Real-Time Recognition SDK. Some of the languages have built-in dictionary support, which improves recognition quality but takes up additional memory.

See also [Available Translation Dictionaries](#).

Internal name	Recognition language	Can be used for OCR	Full dictionary support
Afrikaans	Afrikaans	+	
Albanian	Albanian	+	
Basque	Basque	+	
Belarusian	Belarusian	+	
Breton	Breton	+	
Bulgarian	Bulgarian	+	+
Catalan	Catalan	+	
Chechen	Chechen	+	
ChineseSimplified	Chinese Simplified	+	

Internal name	Recognition language	Can be used for OCR	Full dictionary support
ChineseTraditional	Chinese Traditional	+	
CrimeanTatar	Crimean Tatar	+	
Croatian	Croatian	+	
Czech	Czech	+	+
Danish	Danish	+	+
DutchBelgian	Dutch (Belgium)	+	+
Dutch	Dutch (Netherlands)	+	+
English	English	+	+
Estonian	Estonian	+	+
Fijian	Fijian	+	
Finnish	Finnish	+	+
French	French	+	+
German	German (old spelling)	+	+
GermanNewSpelling	German (new spelling)	+	+
Greek	Greek	+	+
Hawaiian	Hawaiian	+	
Hungarian	Hungarian	+	

Internal name	Recognition language	Can be used for OCR	Full dictionary support
Icelandic	Icelandic	+	
Indonesian	Indonesian	+	+
Irish	Irish	+	
Italian	Italian	+	+
Japanese	Japanese	+	
Kabardian	Kabardian	+	
Korean	Korean	+	
Latin	Latin	+	
Latvian	Latvian	+	
Lithuanian	Lithuanian	+	
Macedonian	Macedonian	+	
Malay	Malay	+	
Maori	Maori	+	
Moldavian	Moldavian	+	
Mongol	Mongol	+	
NorwegianBokmal	Norwegian (Bokmal)	+	+
NorwegianNynorsk	Norwegian (Nynorsk)	+	+

Internal name	Recognition language	Can be used for OCR	Full dictionary support
Ossetic	Ossetic	+	
Polish	Polish	+	+
PortugueseBrazilian	Portuguese (Brazil)	+	+
Portuguese	Portuguese (Portugal)	+	+
Provençal	Provençal	+	
RhaetoRomanic	Rhaeto-Romanic	+	
Romanian	Romanian	+	
Russian	Russian	+	+
Samoan	Samoan	+	
Serbian	Serbian	+	
Slovak	Slovak	+	
Slovenian	Slovenian	+	
Spanish	Spanish	+	+
Swahili	Swahili	+	
Swedish	Swedish	+	+
Tagalog	Tagalog	+	
Tatar	Tatar	+	

Internal name	Recognition language	Can be used for OCR	Full dictionary support
Turkish	Turkish	+	+
Ukrainian	Ukrainian	+	+
Welsh	Welsh	+	

Translation Dictionaries

In the distribution pack you can find several translation dictionaries. Currently all the dictionaries are intended for translating restaurant menus and may not work in other contexts. The following language pairs are available:

English to Chinese	Chinese to English
English to French	French to English
English to German	German to English
English to Indonesian	Indonesian to English
English to Japanese	Japanese to English
English to Polish	Polish to English
English to Portuguese (Brazil)	Portuguese (Brazil) to English
English to Russian	Russian to English
English to Spanish	Spanish to English

You can also create your own dictionary and use it for translation. Contact our [technical support](#) for advice on the required format.

Data Capture Profiles

The following table lists predefined capture profiles and corresponding result data schemes. Profile name is specified when creating a Data Capture service, and result scheme identifiers are returned by the service. Note that in some cases the result scheme depends on the type of your license. If you are not sure which profiles are enabled by your license, please [contact support](#).

Document type	Profile name	Result scheme	Result description
Bank card	BankCards	BankCardEmbossed	Bank cards with embossed fields (front

Document type	Profile name	Result scheme	Result description
			side)
		BankCardUnembossed	Bank cards with indent-printed fields (front side)
International bank account number	IBAN	IBAN	International bank account number
Machine-readable document zone	MRZ	MRZ	MRZ of a passport
		MRZ_MRP	ICAO Doc 9303 machine-readable passports (2 lines, 44 characters each)
		MRZ_MRV_A	ICAO Doc 9303 machine-readable visa MRV-A (2 lines, 44 characters each)
		MRZ_MRV_B	ICAO Doc 9303 machine-readable visa MRV-B (2 lines, 36 characters each)
		MRZ_TD1	ICAO Doc 9303 machine-readable travel document TD-1 (3 lines, 30 characters each)
		MRZ_TD2	ICAO Doc 9303 machine-readable travel document TD-2 (2 lines, 36 characters each)
		MRZ_BG	MRZ-like zone of the Bulgarian vehicle registration document

Document type	Profile name	Result scheme	Result description
			(3 lines, 30 characters each)
		MRZ_CH	MRZ-like zone of the Swiss driver's license (3 lines, 9, 30 and 30 characters)
		MRZ_FR	MRZ-like zone of the French national identity card (2 lines, 36 characters each)
		MRZ_RU	MRZ-like zone of the Russian passport (2 lines, 44 characters each)
		MRZ_MRV_RU	MRZ-like zone of the Russian visa (2 lines, 44 characters each)
Armenian ID card	ID_AM	ID_AM_TYPE1	Armenian ID card (front)
Austrian passport	InternationalPassport_AT	InternationalPassport_AT	Austrian international passport (main page)
Austrian ID card	ID_AT	ID_AT	Austrian ID card (front)
Austrian driver's license	DriverLicense_AT	DriverLicense_AT_TYPE1	Austrian driver's license with the title at the top (front side)
		DriverLicense_AT_TYPE2	Austrian driver's license with the title in the top-right corner (front side)
Bahrain ID card	ID_BH	ID_BH_TYPE1	Bahrain ID card (front)

Document type	Profile name	Result scheme	Result description
Belarusian passport	Passport_BY	Passport_BY	Belarusian passport (main page)
		Passport_BY_PAGE31	Belarusian passport (page 31)
Belarusian driver's license	DriverLicense_BY	DriverLicense_BY	Belarusian driver's license (front side)
Belgium ID card	ID_BE	ID_BE	Belgium ID card (front side)
Belgium driving license	DriverLicense_BE	DriverLicense_BE_TYPE 1	Belgium driving license, in English (front side)
British passport	InternationalPassport_UK	InternationalPassport_UK_TYPE1	Non-biometric British passport (main page)
		InternationalPassport_UK_TYPE2	Biometric British passport (main page)
British driver's license	DriverLicense_UK	DriverLicense_UK_TYPE 1	British driver's license (front side)
		DriverLicense_UK_TYPE 2	British driver's license with a logo on the right (front side)
		DriverLicense_UK_PRO VISIONAL	British driver's license, provisional (front side)
Bulgarian ID card	ID_BG	ID_BG_TYPE1	Bulgarian ID card (new type, front side)
		ID_BG_TYPE2	Bulgarian ID card (old type, front side)

Document type	Profile name	Result scheme	Result description
Chile ID card	ID_CL	ID_CL_TYPE1	Chile identity card (front side)
Chinese passport	InternationalPassport_CN	InternationalPassport_CN_TYPE1	Chinese passport (old type, main page)
		InternationalPassport_CN_TYPE2	Chinese passport (new type, main page)
Croatian ID card	ID_HR	ID_HR_TYPE1	Croatian identity card (older type, front side)
		ID_HR_TYPE2	Croatian identity card (newer type, front side)
Czech ID card	ID_CZ	ID_CZ	Czech ID card (front side)
Czech driver's license	DriverLicense_CZ	DriverLicense_CZ	Czech driver's license card (front side)
Estonian ID card	ID_EE	ID_EE	Estonian ID card (front side)
Finnish ID card	ID_FI	ID_FI_TYPE1	Finnish identity card (older type, front side)
		ID_FI_TYPE2	Finnish identity card (newer type, front side)
Finnish driver's license	DriverLicense_FI	DriverLicense_FI	Finnish driver's license (front side)
French ID card	ID_FR	ID_FR_TYPE1	French identity card (front side)
Georgian ID card	ID_GE	ID_GE_TYPE1	Georgian identity card (front side)

Document type	Profile name	Result scheme	Result description
Georgian passport	InternationalPassport_GE	InternationalPassport_GE_TYPE1	Georgian passport (newer type, main page)
		InternationalPassport_GE_TYPE2	Georgian passport (older type, main page)
German passport	InternationalPassport_DE	InternationalPassport_DE_TYPE1	German passport (main page)
		InternationalPassport_DE_TYPE2	German passport (main page), with two lines for the first name
German ID card	ID_DE	ID_DE_TYPE1	German ID card (front side)
		ID_DE_TYPE2	German ID card with TD-1 MRZ on the front (front side)
German driver's license	DriverLicense_DE	DriverLicense_DE	German driver's license (front side)
Greek driving license	DriverLicense_GR	DriverLicense_GR_TYPE1	Greek driving license (front side)
Hong Kong ID card	ID_HK	ID_HK_TYPE1	Hong Kong identity card (front side)
Hungarian driver's license	DriverLicense_HU	DriverLicense_HU_TYPE1	Hungarian driver's license (front side)
Hungarian ID card	ID_HU	ID_HU_TYPE1	Hungarian identity card (older type, front side)

Document type	Profile name	Result scheme	Result description
		ID_HU_TYPE2	Hungarian identity card (newer type, front side)
Indian Aadhaar card	Aadhaar_IN	Aadhaar_IN_TYPE1	Indian card with Aadhaar number
Indian passport	InternationalPassport_IN	InternationalPassport_IN	Indian passport (main page)
Israeli driver's license	DriverLicense_IL	DriverLicense_IL	Israeli driver's license (front side)
Italian passport	InternationalPassport_IT	InternationalPassport_IT	Italian passport (main page)
Italian driver's license	DriverLicense_IT	DriverLicense_IT_TYPE1	Italian driver's license (new type, front side)
		DriverLicense_IT_TYPE2	Italian driver's license (issued 2007-2013, front side)
Japanese passport	InternationalPassport_JP	InternationalPassport_JP	Japanese passport (main page)
Japanese driver's license	DriverLicense_JP	DriverLicense_JP	Japanese driver's license (front side)
Japanese health insurance	HealthInsuranceCard_JP	HealthInsuranceCard_JP	Japanese health insurance card (front side)
Kazakhstan ID card	ID_KZ	ID_KZ_TYPE1	Kazakhstan ID card with 2-line MRZ (front and back sides)
		ID_KZ_TYPE2	Kazakhstan ID card with 3-line MRZ (front

Document type	Profile name	Result scheme	Result description
			and back sides)
Kuwait ID card	ID_KW	ID_KW_TYPE1	Kuwait ID card (card-size, front side)
Kyrgyzstani ID card	ID_KG	ID_KG	Kyrgyzstani ID card (front and back)
Latvian ID card	ID_LV	ID_LV	Latvian ID card (front side)
Lithuanian ID card	ID_LT	ID_LT_TYPE1	Lithuanian ID card (front side)
Malaysian ID card	ID_MY	ID_MY	Malaysian ID card (front side)
New Zealand driving license	DriverLicense_NZ	DriverLicense_NZ_TYPE1	New Zealand driving license (new type, front side)
Nigerian ID card	ID_NG	ID_NG_TYPE1	Nigerian ID card (front side)
Norwegian driving license	DriverLicense_NO	DriverLicense_NO_TYPE1	Norwegian driving license (front side)
Norwegian ID card	ID_NO	ID_NO_TYPE1	Norwegian ID card (front side)
Philippine passport	InternationalPassport_PH	InternationalPassport_PH_TYPE1	Non-biometric Philippine passport (main page)
		InternationalPassport_PH_TYPE2	Biometric Philippine passport (main page)

Document type	Profile name	Result scheme	Result description
Polish ID card	ID_PL	ID_PL_TYPE1	Polish ID card, older type (front and back)
		ID_PL_TYPE2	Polish ID card, newer type (front and back)
Polish driver's license	DriverLicense_PL	DriverLicense_PL_TYPE1	Polish driver's license, old type (front side)
Portuguese ID card	ID_PT	ID_PT_TYPE1	Portuguese ID card (front side)
Portuguese driver's license	DriverLicense_PT	DriverLicense_PT_TYPE1	Portuguese driver's license (front side)
Romanian ID card	ID_RO	ID_RO	Romanian ID card (front side)
Russian international biometric passport	InternationalPassport_RU	InternationalPassport_RU	Russian international biometric passport (main page)
Russian visa	Visa_RU	Visa_RU_TYPE1	Russian visa
Russian passport	Passport_RU	Passport_RU	Russian passport (pages 2 and 3)
		Passport_RU_Top	Russian passport (page 2, with signatures)
		Passport_RU_Bottom	Russian passport (page 3, with a photo)
Russian birth certificate	BirthCertificate_RU	BirthCertificate_RU_TYP E1	Russian birth certificate

Document type	Profile name	Result scheme	Result description
Russian insurance individual account number (SNILS)	SocialSecurityNumber_RU	SocialSecurityNumber_RU_TYPE1	Laminated SNILS (front side)
		SocialSecurityNumber_RU_TYPE2	Card-size SNILS (front side)
Russian driver's license	DriverLicense_RU	DriverLicense_RU	Russian driver's license, new type (front side)
		DriverLicense_RU_TYPE1	Russian driver's license, old type (front side)
		DriverLicense_RU_TYPE2	Russian driver's license, old type, vertical (front side)
		DriverLicense_RU_TYPE3	Russian driver's license, new type (front side)
Russian vehicle registration certificate	VehicleRegistration_RU	VehicleRegistration_RU_TYPE1	Russian vehicle registration certificate, old type (front and back sides)
		VehicleRegistration_RU_TYPE2	Russian vehicle registration certificate, new type (front and back sides)
Salvadorean ID card	ID_SV	ID_SV_TYPE1	Salvadorean ID card (front side)
Serbian driving license	DriverLicense_RS	DriverLicense_RS_TYPE1	Serbian driving license (front side)
Serbian ID card	ID_RS	ID_RS_TYPE1	Serbian ID card (front side)

Document type	Profile name	Result scheme	Result description
Singapore ID card	ID_SG	ID_SG	Singapore ID card (front side)
Singapore work permit	WorkPermit_SG	WorkPermit_SG_TYPE1	Singapore work permit (front side)
South African Republic ID card	ID_ZA	ID_ZA_TYPE1	South African Republic ID card (front side)
Spanish ID card	ID_ES	ID_ES_TYPE1	Spanish ID card (old type, front side)
		ID_ES_TYPE2	Spanish ID card (new type, front side)
Spanish driving license	DriverLicense_ES	DriverLicense_ES_TYPE1	Spanish driving license (older type, front side)
		DriverLicense_ES_TYPE2	Spanish driving license (newer type, front side)
Spanish residence permit	ResidencePermit_ES	ResidencePermit_ES_TYPE1	Spanish residence permit, blue color (front side)
		ResidencePermit_ES_TYPE2	Spanish residence permit, pink color (front side)
Swedish driver's license	DriverLicense_SE	DriverLicense_SE_TYPE1	Swedish driver's license with a photo near the signature (front side)
		DriverLicense_SE_TYPE2	Swedish driver's license with a logo on the right (front side)

Document type	Profile name	Result scheme	Result description
Swiss ID card	ID_CH	ID_CH_TYPE1	Swiss ID card (front side)
Swiss driver's license	DriverLicense_CH	DriverLicense_CH_TYPE1	Swiss driver's license (front side)
Syrian passport	InternationalPassport_SY	InternationalPassport_SY	Syrian passport (main page)
Tajikistani passport	InternationalPassport_TJ	InternationalPassport_TJ_TYPE1	Tajikistani passport in Latin only (main page)
Turkish ID card	ID_TR	ID_TR_TYPE1	Turkish ID card (front side)
Turkish driver's license	DriverLicense_TR	DriverLicense_TR_TYPE1	Turkish driver's license (front side)
UAE ID card	ID_AE	ID_AE_TYPE1	UAE ID card (front side)
USA passport	InternationalPassport_US	InternationalPassport_US_TYPE1	USA passport, old type (main page)
		InternationalPassport_US_TYPE2	USA passport, new type (main page)
USA driver's license	DriverLicense_US	DriverLicense_US_AL_TYPE1	USA Alabama driver's license (front side)
		DriverLicense_US_AZ_TYPE1	USA Alabama driver's license, card size (front side)
		DriverLicense_US_CA_TYPE1	USA California driver's license, card size (front side)

Document type	Profile name	Result scheme	Result description
		DriverLicense_US_DC_T YPE1	USA Washington DC driver's license, older type (front side)
		DriverLicense_US_DC_T YPE2	USA Washington DC driver's license, newer type (front side)
		DriverLicense_US_FL_TY PE1	USA Florida driver's license (front side)
		DriverLicense_US_MA_ TYPE1	USA Massachusetts driver's license, card size (front side)
		DriverLicense_US_ME_T YPE1	USA Maine driver's license (front side)
		DriverLicense_US_MI_T YPE1	USA Michigan driver's license (front side)
		DriverLicense_US_NM_ TYPE1	USA New Mexico driver's license, card size (front side)
		DriverLicense_US_TX_T YPE1	USA Texas driver's license (front side)
		DriverLicense_US_WA_ TYPE1	USA Washington driver's license (front side)
USA permanent residency card (Green card)	GreenCard_US	GreenCard_US_TYPE1	USA permanent residency card, also known as Green card (front side)
Uzbek passport	InternationalPassport_UZ	InternationalPassport_UZ_TYPE1	Uzbek passport (main page)

The following table lists field identifiers used in result data schemes returned by the Data Capture service.

Scheme	Field	Field description	Comments
Aadhaar_IN_TYPE1	Number	Aadhaar number	
BankCardEmbossed BankCardUnembossed	Number	Card number	
	FullName	Cardholder's full name	
	DateOfExpiry	Card expiry date	
BirthCertificate_RU_TYP E1	FullNumber	Full document number (series and number, including the number sign)	
	Series	Document series (two Latin and two Cyrillic letters, separated by a hyphen)	
	Number	Document number (not including the number sign)	
	DateOfIssue	Document issue date	
	DayOfIssue	The day of issue date	
	MonthOfIssue	The month of issue date	
	YearOfIssue	The year of issue date	
	Sex	Document holder's sex	
	LastName	Document holder's last name	

Scheme	Field	Field description	Comments
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	FirstNameMiddleName	Document holder's first name and patronymic	
	DateOfBirth	Document holder's birth date	
DriverLicense_AT_TYPE 1	Number	License number	
DriverLicense_AT_TYPE 2	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirthPlaceOfBirth	Driver's date and place of birth	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	In the DriverLicense_AT_TYPE 1 scheme only
	PlaceOfIssue	Region where the license was issued	
DriverLicense_BE_TYPE 1	DateOfIssue	License issue date	
	LastName	Driver's last name	
	FirstName	Driver's first name	

Scheme	Field	Field description	Comments
	Number	License number	
	DateOfExpiry	License expiry date	
	DateOfBirth	Driver's date of birth	
DriverLicense_BY	Number	License number	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	MiddleName	Driver's patronymic name	
	FirstNameMiddleName	Driver's first and patronymic names	
	DateOfBirth	Driver's date of birth	
	PlaceOfBirth	Driver's place of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_CH_TYPE 1	Number	License number	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	PlaceOfBirth	Driver's place of birth	

Scheme	Field	Field description	Comments
	PlaceOfIssue	Region where the license was issued	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_CZ	Number	License number	
	DriverID	Driver's personal identifier	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_DE	Number	License number	
	LastName	Driver's last name	
	LastName_LINE2	Second line of the driver's last name	
	FirstName	Driver's first name	
	DateOfIssue	License issue date	
	PlaceOfBirth	Driver's place of birth	

Scheme	Field	Field description	Comments
	DateOfBirth	Driver's date of birth	
	PlaceOfIssue	Region where the license was issued	
	PlaceOfIssue_LINE2	Region where the license was issued, continued	
DriverLicense_ES_TYPE 1 DriverLicense_ES_TYPE 2	DateOfIssue	License issue date	
	DateOfBirth	Driver's date of birth	
	FirstName	Driver's first name	
	LastName	Driver's last name	
	LastName_LINE2	Driver's last name, continued	
	Number	License number	
	DateOfExpiry	License expiry date	
DriverLicense_FI	Number	License number	
	DriverID	Driver's personal identifier	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	Nationality	Driver's nationality	

Scheme	Field	Field description	Comments
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
	PlaceOfIssue	Region where the license was issued	
DriverLicense_GR_TYPE 1	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's birth date	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
	IssuedBy	The authority that issued the license	
	PersonalCode	Driver's personal code	
	Number	License number	
DriverLicense_HU_TYPE 1	FirstName	Driver's first name	
	LastName	Driver's last name	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
	DateOfBirth	Driver's birth date	

Scheme	Field	Field description	Comments
	Number	License number	
DriverLicense_IL	Number	License number	
	DriverID	Driver's personal identifier	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_IT_TYPE1 DriverLicense_IT_TYPE2	Number	License number	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_JP	Number	License number	
DriverLicense_NO_TY E1	FirstName	Driver's first name	
	LastName	Driver's last name	

Scheme	Field	Field description	Comments
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
	DateOfBirth	Driver's birth date	
	Number	License number	
	IssuedBy	The authority that issued the license	
	ReferenceNumber	Reference number	
DriverLicense_NZ_TYPE 1	Number	License number	
	Version	License version	
	DateOfBirth	Driver's birth date	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	FullName_LINE2	Additional line for driver's name	
DriverLicense_PL_TYPE 1	LastName	Driver's last name	
	FirstName	Driver's first name	
	Number	License number	
	DateOfBirth	License birth date	
	DateOfIssue	License issue date	

Scheme	Field	Field description	Comments
DriverLicense_PT_TYPE 1	Number	License number	
	DriverID	Driver's personal identifier	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_RS_TYPE 1	FirstName	Driver's first name	
	LastName	Driver's last name	
	DateOfExpiry	License expiry date	
	DateOfIssue	License issue date	
	Number	License number	
	IssuedBy	The authority that issued the license	
DriverLicense_RU DriverLicense_RU_TYPE 1 DriverLicense_RU_TYPE 2 DriverLicense_RU_TYPE 3	Number	License number	
	Number_EX	License number	In the DriverLicense_RU_TYPE 2 scheme only. Some licenses of this type contain an additional field that repeats the

Scheme	Field	Field description	Comments
			license number. The numbers recognized from the Number and Number_EX fields should be the same.
	LastName	Driver's last name	
	FirstName	Driver's first name	Except the DriverLicense_RU scheme
	MiddleName	Driver's patronymic name	Except the DriverLicense_RU scheme
	FirstNameMiddleName	Driver's first and patronymic names	In the DriverLicense_RU, DriverLicense_RU_TYPE 1 schemes only
	Sex	Driver's sex	
	DateOfBirth	Driver's date of birth	
	PlaceOfBirth	Driver's place of birth	In the DriverLicense_RU scheme only
	RegionOfResidence	Driver's region of residence	In the DriverLicense_RU scheme only
	IssuedBy	The authority that issued the license	In the DriverLicense_RU scheme only
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	

Scheme	Field	Field description	Comments
DriverLicense_SE_TYPE 1 DriverLicense_SE_TYPE 2	Number	License number	
	DriverID	Driver's personal identifier	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_TR_TYPE 1	Number	License number	
	DriverID	Driver's personal identifier	
	LastName	Driver's last name	
	FirstName	Driver's first name	
	DateOfBirth	Driver's date of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
DriverLicense_UK_TYPE 1 DriverLicense_UK_TYPE 2 DriverLicense_UK_PRO VISIONAL	Number	License number	
	LastName	Driver's last name	
	FirstName	Driver's first name	

Scheme	Field	Field description	Comments
	DateOfBirth	Driver's date of birth	
	PlaceOfBirth	Driver's place of birth	
	DateOfBirthPlaceOfBirth	Driver's date and place of birth	
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
	IssuedBy	The authority that issued the license	
DriverLicense_US_AL_TYPE1 DriverLicense_US_AZ_TYPE1 DriverLicense_US_CA_TYPE1 DriverLicense_US_DC_TYPE1 DriverLicense_US_DC_TYPE2 DriverLicense_US_FL_TYPE1 DriverLicense_US_MA_TYPE1 DriverLicense_US_ME_TYPE1 DriverLicense_US_MI_TYPE1 DriverLicense_US_NM_TYPE1 DriverLicense_US_TX_TYPE1 DriverLicense_US_WA_TYPE1	Number	License number	
	LastName	Driver's last name	Except the DriverLicense_US_DC_TYPE1 and DriverLicense_US_MI_TYPE1 schemes
	FirstName	Driver's first name	Except the DriverLicense_US_DC_TYPE1 and DriverLicense_US_MI_TYPE1 schemes
	FirstName_LINE2	Second line of the driver's first name	In the DriverLicense_US_DC_TYPE2 scheme only
	FullName	Driver's full name	In the DriverLicense_US_DC_TYPE1 and DriverLicense_US_MI_TYPE1 schemes only
	DateOfBirth	Driver's date of birth	

Scheme	Field	Field description	Comments
	DateOfIssue	License issue date	
	DateOfExpiry	License expiry date	
HealthInsuranceCard_JP	SerialNumber	Insurance number	
	InsuranceType	Insurance type	
	InsurerNumber	Insurer number	
	OrganizationCode	Insurer code	
GreenCard_US_TYPE1	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Number	Document number	
	Category	Category of residency	
	DateOfBirth	Document holder's birth date	
	Sex	Document holder's sex	
	DateOfExpiry	Document expiry date	
	ResidentSince	The residency start date	
IBAN	IBAN	International bank account number	

Scheme	Field	Field description	Comments
ID_AE_TYPE1	Number	Document number	
ID_AM_TYPE1	LastName	Document holder's last name	
	LastName_EX	Document holder's last name in English	
	FirstName	Document holder's first name	
	FirstName_EX	Document holder's first name in English	
	MiddleName	Document holder's patronymic name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	
	Number	Document number	
ID_AT	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	

Scheme	Field	Field description	Comments
	DateOfBirth	Document holder's date of birth	
ID_BE	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
ID_BG_TYPE1 ID_BG_TYPE2	Number	Document number	
	PersonalCode	Document holder's personal code	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	Sex	Document holder's sex	

Scheme	Field	Field description	Comments
	DateOfBirth	Document holder's date of birth	
	Address	Document holder's address	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	City	The city where the document was issued	From the back side; in the ID_BG_TYPE2 scheme only
	RegionOfResidence	Document holder's region of residence	From the back side
	Municipality	Municipal district	From the back side; in the ID_BG_TYPE2 scheme only
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	PersonalCode_MRZ	Document holder's personal code from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	

Scheme	Field	Field description	Comments
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted document holder's date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
ID_BH_TYPE1	Number	Document number	
	FullName	Document holder's full name	
	DateOfExpiry	Document expiry date	
ID_CH_TYPE1	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's date of birth	
ID_CL_TYPE1	LastName	Document holder's last name	

Scheme	Field	Field description	Comments
	LastName_LINE2	Second line of the Document holder's last name	
	FirstName	Document holder's first name	
	Nationality	Document holder's nationality	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	Number	Document number	
ID_CZ	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	DateOfIssue	Document issue date	

Scheme	Field	Field description	Comments
	DateOfExpiry	Document expiry date	
ID_DE_TYPE1 ID_DE_TYPE2	Number	Document number	
	LastName	Document holder's last name	
	LastName_LINE2	Second line of the Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's date of birth	
	DateOfBirthNationality	Document holder's date of birth and nationality	In the ID_DE_TYPE1 scheme only
	DateOfBirthPlaceOfBirth	Document holder's date and place of birth	In the ID_DE_TYPE2 scheme only
	PlaceOfBirth	Document holder's place of birth	
	Address_LINE1	Document holder's address	
	Address_LINE2	Document holder's address, continued	
	Address_LINE3	Document holder's address, continued	
	Nationality	Nationality of the document holder	In the ID_DE_TYPE2 scheme only

Scheme	Field	Field description	Comments
	Height	Document holder's height	In the ID_DE_TYPE1 scheme only
	EyeColor	Document holder's eye color	In the ID_DE_TYPE1 scheme only
	IssuedBy	The authority that issued the license	In the ID_DE_TYPE1 scheme only
	DateOfIssue	Document issue date	In the ID_DE_TYPE1 scheme only
	DateOfExpiry	Document expiry date	
	RFID	RFID number	In the ID_DE_TYPE1 scheme only
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	

Scheme	Field	Field description	Comments
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
ID_EE	Number	Document number	
	PersonalCode	Document holder's personal code	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	FirstName_EX	Document holder's first name, continued	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	
ID_ES_TYPE1 ID_ES_TYPE2	Number	Document number	
	IDESP	Identity card serial number	
	LastName	Document holder's last name	

Scheme	Field	Field description	Comments
	LastName_LINE2	Second line of the Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	
ID_FI_TYPE1 ID_FI_TYPE2	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	DateOfBirth	Document holder's date of birth	
	Number	Document number	
	Sex	Document holder's sex	In the ID_FI_TYPE2 scheme only
ID_FR_TYPE1	Number	Document number	

Scheme	Field	Field description	Comments
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's date of birth	
	Sex	Document holder's sex	
	MRZ	Full contents of the machine-readable zone	
	FirstName_MRZ	Document holder's first name from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	Number_MRZ	Document number from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	IssuingStateCode	Code of the country that issued the document	

Scheme	Field	Field description	Comments
	DocumentType_MRZ	Document type from MRZ	
ID_GE_TYPE1	FirstName	Document holder's first name	
	FirstName_EX	Document holder's first name in English	
	LastName	Document holder's last name	
	LastName_EX	Document holder's last name in English	
	Number	Document number	
	PersonalCode	Document holder's personal code	
	DateOfBirth	Document holder's birth date	
	DateOfExpiry	Document expiry date	
ID_HK_TYPE1	Number	Document number	
	Code	Document code	
	FullName	Document holder's full name	
	DateOfBirth	Document holder's birth date	
	DateOfIssue	Document issue date	

Scheme	Field	Field description	Comments
ID_HR_TYPE1 ID_HR_TYPE2	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's birth date	
	DateOfExpiry	Document expiry date	
	Number	Document number	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
ID_HU_TYPE1 ID_HU_TYPE2	FullName	Document holder's full name	
	Number	Document number	
	DateOfBirth	Document holder's birth date	In ID_HU_TYPE2 scheme only
	DateOfExpiry	Document expiry date	In ID_HU_TYPE2 scheme only
	Sex	Document holder's sex	In ID_HU_TYPE2 scheme only
	CardAccessNumber	Card access number	In ID_HU_TYPE2 scheme only
ID_KG	Number	Document number	

Scheme	Field	Field description	Comments
	PersonalCode	Document holder's personal code	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	MaritalStatus	Document holder's marital status	
	Address	Document holder's address	
	Address_LINE2	Second line of the Document holder's address	
	IssuedBy	The authority that issued the document	
	DateOfIssue	Document issue date	

Scheme	Field	Field description	Comments
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	PersonalCode_MRZ	Document holder's personal code from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
ID_KW_TYPE1	Number	Document number	
	SerialNumber	Serial number	

Scheme	Field	Field description	Comments
	FullName	Document holder's full name	
	FullName_LINE2	Second line of the Document holder's full name	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
ID_KZ_TYPE1 ID_KZ_TYPE2	Number	Document number	
	PIN	Personal PIN (VIZ)	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	DateOfBirth	Document holder's date of birth	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	PIN_MRZ	Personal PIN (VIZ) from MRZ	In the ID_KZ_TYPE2 scheme only

Scheme	Field	Field description	Comments
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
ID_LT_TYPE1	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's birth date	
	PersonalCode	Document holder's personal number	
	Number	Document number	
	DateOfExpiry	Document expiry date	

Scheme	Field	Field description	Comments
	Sex	Document holder's sex	
ID_LV	Number	Document number	
	PersonalCode	Document holder's personal code	
	LastName	Document holder's primary last name	
	LastName_EX	Document holder's secondary last name	
	FirstName	Document holder's first name	
	Nationality	Nationality of the document holder	
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	
ID_MY	Number	Document number	
	FullName	Document holder's full name	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	Address_LINE1	Document holder's address	

Scheme	Field	Field description	Comments
	Address_LINE2	Document holder's address, continued	
	Address_LINE3	Document holder's address, continued	
	Address_LINE4	Document holder's address, continued	
	Address_LINE5	Document holder's address, continued	
ID_NG_TYPE1	FirstName	Document holder's first name	
	LastName	Document holder's last name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's birth date	
	Height	Document holder's height	
ID_NO_TYPE1	FirstName	Document holder's first name	
	LastName	Document holder's last name	
	Sex	Document holder's sex	
	Number	Document number	

Scheme	Field	Field description	Comments
	DateOfBirth	Document holder's birth date	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
ID_PL_TYPE1 ID_PL_TYPE2	Number	Document number	In the ID_PL_TYPE1 scheme only
	PersonalNumber	PESEL number from the back side	In the ID_PL_TYPE1 scheme only
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	FamilyName	Document holder's family name (last name at birth)	
	ParentsFirstNames	First names of document holder's parents	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	In the ID_PL_TYPE1 scheme only
	MRZ	Full contents of the machine-readable zone	

Scheme	Field	Field description	Comments
	Number_MRZ	Document number from MRZ	
	PersonalNumber_MRZ	PESEL number from MRZ	In the ID_PL_TYPE2 scheme only
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
ID_PT_TYPE1	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	

Scheme	Field	Field description	Comments
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	
ID_RO	CNP	CNP Number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	

Scheme	Field	Field description	Comments
	DateOfExpiry_FORMAT TED	Formatted document expiry date from MRZ	
ID_RS_TYPE1	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's birth date	
	Sex	Document holder's sex	
	Number	Document number	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
ID_SG	Number	Document number	
	FullName	Document holder's full name	
	FullName_EX	Document holder's full name, continued	
	FullName_EX2	Document holder's full name, continued	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	

Scheme	Field	Field description	Comments
	CountryOfBirth	Document holder's country of birth	
	Nationality	Nationality of the document holder	
ID_SV_TYPE1	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Number	Document number	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's birth date	
ID_TR_TYPE1	Number	Document number	
	PersonalCode	Document holder's personal code	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	DateOfExpiry	Document expiry date	

Scheme	Field	Field description	Comments
ID_ZA_TYPE1	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's birth date	
	Sex	Document holder's sex	
	Number	Document number	
	Nationality	Document holder's nationality	
InternationalPassport_AT	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	Height	Document holder's height	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	

Scheme	Field	Field description	Comments
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	DVRNumber	DVR number	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_CN_TYPE1 InternationalPassport_CN_TYPE2	Number	Document number	
	LastName	Document holder's last name	In the InternationalPassport_CN_TYPE1 scheme only
	FirstName	Document holder's first name	In the InternationalPassport_CN_TYPE1 scheme only

Scheme	Field	Field description	Comments
	LastNameFirstName	Document holder's full name	In the InternationalPassport_CN_TYPE2 scheme only
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	Nationality	Nationality of the document holder	In the InternationalPassport_CN_TYPE2 scheme only
	PlaceOfIssue	Region where the document was issued	
	IssuingStateCode	Code of the authority that issued the document	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	

Scheme	Field	Field description	Comments
	LastName_MRZ	Document holder's last name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	Nationality_MRZ	Document holder's nationality from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
	Optional_MRZ_LINE2	Optional second line of MRZ	
InternationalPassport_DE_TYPE1 InternationalPassport_DE_TYPE2	Number	Document number	
	LastName	Document holder's last name	
	LastName_LINE2	Second line of the Document holder's last name	
	FirstName	Document holder's first name	

Scheme	Field	Field description	Comments
	FirstName_LINE2	Second line of the Document holder's first name	In the InternationalPassport_DE_TYPE2 scheme only
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	Nationality	Nationality of the document holder	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	IssuedBy	The authority that issued the document	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	

Scheme	Field	Field description	Comments
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_GE_TYPE1 InternationalPassport_GE_TYPE2	PersonalCode	Document holder's personal code	In the InternationalPassport_GE_TYPE1 scheme only
	PersonalCode_MRZ	Document holder's personal code from MRZ	In the InternationalPassport_GE_TYPE2 scheme only
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	

Scheme	Field	Field description	Comments
	Nationality_MRZ	Document holder's nationality from MRZ	
	Number_MRZ	Document number from MRZ	
	MRZ	Full contents of the machine-readable zone	
InternationalPassport_I N	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	Nationality	Nationality of the document holder	
	PlaceOfIssue	The region where the document was issued	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	

Scheme	Field	Field description	Comments
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_IT	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	

Scheme	Field	Field description	Comments
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	Nationality	Nationality of the document holder	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	

Scheme	Field	Field description	Comments
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_JP	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	Nationality	Nationality of the document holder	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	

Scheme	Field	Field description	Comments
	LastName_MRZ	Document holder's last name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_PH_TYPE1 InternationalPassport_PH_TYPE2	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	

Scheme	Field	Field description	Comments
	Nationality	Nationality of the document holder	In the InternationalPassport_P H_TYPE2 scheme only
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	Nationality_MRZ	Nationality of the document holder from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	

Scheme	Field	Field description	Comments
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_RU	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	FirstNameMiddleName	Document holder's first and patronymic names	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	IssuedBy	The authority that issued the document	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	

Scheme	Field	Field description	Comments
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	Nationality_MRZ	Nationality of the document holder from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_SY	DateOfBirth	Document holder's date of birth	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	

Scheme	Field	Field description	Comments
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_TJ_TYPE1	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Nationality	Document holder's nationality	
	DateOfBirth	Document holder's birth date	
	Sex	Document holder's sex	
	DateOfIssue	Document issue date	

Scheme	Field	Field description	Comments
	DateOfExpiry	Document expiry date	
	Number	Document number	
	MRZ	Full contents of the machine-readable zone	
	FirstName_MRZ	Document holder's first name from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	Number_MRZ	Document number from MRZ	
	Nationality_MRZ	Nationality of the document holder from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's birth date from MRZ	
	DateOfBirth_FORMATTED	Formatted birth date from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_UK_TYPE1	Number	Document number	

Scheme	Field	Field description	Comments
InternationalPassport_UK_TYPE2	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	IssuedBy	The authority that issued the document	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	

Scheme	Field	Field description	Comments
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
InternationalPassport_US_TYPE1 InternationalPassport_US_TYPE2	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	

Scheme	Field	Field description	Comments
	Number_MRZ	Document number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	FirstName_MRZ	Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	Nationality_MRZ	Nationality of the document holder from MRZ	
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
	Optional_MRZ_LINE2	Optional second line of MRZ	
InternationalPassport_UZ_TYPE1	Number	Document number	
	LastName	Document holder's last name	

Scheme	Field	Field description	Comments
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's birth date	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	Sex	Document holder's sex	
	MRZ	Full contents of the machine-readable zone	
	FirstName_MRZ	Document holder's first name from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	Number_MRZ	Document number from MRZ	
	Nationality_MRZ	Document holder's nationality from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's birth date from MRZ	
	DateOfBirth_FORMATTED	Formatted birth date from MRZ	

Scheme	Field	Field description	Comments
	DateOfExpiry_MRZ	Document expiry date from MRZ	
	DateOfExpiry_FORMATTED	Formatted document expiry date from MRZ	
MRZ	Number	Document number	
	DocumentType	Document type	
	DocumentSubtype	Document subtype	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's date of birth	
	Sex	Document holder's sex	
	Nationality	Nationality of the document holder	
	PersonalNumber	Document holder's personal number	
	IssuingCountry	The country where the document was issued	
	DateOfExpiry	Document expiry date	
	OptionalData	Optional MRZ data	

Scheme	Field	Field description	Comments
MRZ_CH MRZ_FR MRZ_MRP MRZ_MRV_A MRZ_MRV_B MRZ_MRV_RU MRZ_RU MRZ_TD1 MRZ_TD2	MRZ	Full contents of the MRZ	
	MRZ_LINE1	The first line of MRZ	
	MRZ_LINE2	The second line of MRZ	
	MRZ_LINE3	The third line of MRZ	In the MRZ_TD1 scheme only
	Number	Document number	
	Number_FORMATTED	Formatted document number	
	DocumentType	Document type	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	DateOfBirth	Document holder's date of birth	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	Sex	Document holder's sex	Except the MRZ_CH scheme
	Nationality	Nationality of the document holder	Except the MRZ_CH scheme

Scheme	Field	Field description	Comments
	IssuingStateCode	Code of the country that issued the document	
	DepartmentCode	Code of the authority that issued the document	In the MRZ_RU scheme only
	DateOfIssue	Document issue date	In the MRZ_RU scheme only
	DateOfIssue_FORMATTED	Formatted document issue date	In the MRZ_RU scheme only
	DateOfExpiry	Document expiry date	Except the MRZ_CH, MRZ_FR, MRZ_RU schemes
	DateOfExpiry_FORMATTED	Formatted document expiry date	Except the MRZ_CH, MRZ_FR, MRZ_RU schemes
	OptionalData_LINE1	Optional MRZ line	
	OptionalData_LINE2	Optional MRZ line	
MRZ_BG	MRZ	Full contents of the MRZ	
	MRZ_LINE1	The first line of MRZ	
	MRZ_LINE2	The second line of MRZ	
	Number	Document number	
	Number_FORMATTED	Formatted document number	

Scheme	Field	Field description	Comments
	DocumentType	Document type	
	IssuingStateCode	Code of the country that issued the document	
	VehicleNumber	Vehicle license number	
	Owner	Vehicle owner's full name for personal vehicles, or a company name if the vehicle is owned by a legal entity	
	PersonalCode	Owner identification number	
	VIN	Vehicle identification number (VIN)	
Passport_BY Passport_BY_PAGE31	Number	Document number	In the Passport_BY scheme only
	ID	Document holder's personal identifier	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	Sex	Document holder's sex	In the Passport_BY scheme only
	DateOfBirth	Document holder's date of birth	

Scheme	Field	Field description	Comments
	PlaceOfBirth	Document holder's place of birth	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	
	MRZ	Full contents of the machine-readable zone	In the Passport_BY scheme only
	Number_MRZ	Document number from MRZ	In the Passport_BY scheme only
	LastName_MRZ	Document holder's last name from MRZ	In the Passport_BY scheme only
	FirstName_MRZ	Document holder's first name from MRZ	In the Passport_BY scheme only
	Sex_MRZ	Document holder's sex from MRZ	In the Passport_BY scheme only
	Nationality_MRZ	Nationality of the document holder from MRZ	In the Passport_BY scheme only
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	In the Passport_BY scheme only
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	In the Passport_BY scheme only
	DateOfExpiry_MRZ	Document expiry date from MRZ	In the Passport_BY scheme only

Scheme	Field	Field description	Comments
	DateOfExpiry_FORMAT TED	Formatted document expiry date from MRZ	In the Passport_BY scheme only
Passport_RU Passport_RU_Top Passport_RU_Bottom	Series	Document series	In the Passport_RU scheme only
	Number	Document number	In Passport_RU_Top and Passport_RU_Bottom, this field contains both series and number
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	Sex	Document holder's sex	
	DateOfBirth	Document holder's date of birth	
	PlaceOfBirth	Document holder's place of birth	
	IssuedBy	The authority that issued the document	
	DepartmentCode	The code of the authority that issued the document	
	DateOfIssue	Document issue date	

Scheme	Field	Field description	Comments
	MRZ	Full contents of the machine-readable zone	In the Passport_RU scheme only
	MRZ_LINE1	The first line of MRZ	In the Passport_RU scheme only
	MRZ_LINE2	The second line of MRZ	In the Passport_RU scheme only
ResidencePermit_ES_TY PE1 ResidencePermit_ES_TY PE2	Number	Document number	
	NIENumber	NIE number	
	FullName	Document holder's full name	
	FullName_LINE2	Second line of the document holder's full name	
	DateOfBirth	Document holder's date of birth	
	Nationality	Nationality of the document holder	
	Address	Document holder's address	
	Address_LINE2	Second line of the document holder's address	
	DateOfRegistration	Date of resident registration	
	ProvinceOfIssue	Province of issue	

Scheme	Field	Field description	Comments
	PlaceOfIssue	Place of issue	
SocialSecurityNumber_RU_TYPE1 SocialSecurityNumber_RU_TYPE2	Number	Document number	
	LastName	Document holder's last name	
	FirstName	Document holder's first name	
	MiddleName	Document holder's patronymic name	
	DateOfBirth	Document holder's date of birth	
VehicleRegistration_RU_TYPE1 VehicleRegistration_RU_TYPE2	Number	Document number	
	LicensePlate	License plate number	
	VIN	VIN number	
Visa_RU_TYPE1	DocumentType	Type of visa	
	Number	Visa number	
	PassportNumber	Document holder's passport number	
	FullName	Document holder's full name	
	FullName_EX	Document holder's full name in English	
	Sex	Document holder's sex	

Scheme	Field	Field description	Comments
	DateOfBirth	Document holder's date of birth	
	Nationality	Nationality of the document holder	
	InvitationNumber	The number of invitation	
	VisaId	Visa ID	
	FromTo	Duration	
	DateOfIssue	Visa issue date	
	EntryFromDate	Entry from date	
	StayUntilDate	Stay until date	
	Duration	Duration	
	MRZ	Full contents of the machine-readable zone	
	PassportNumber_MRZ	Document holder's passport number from MRZ	
	LastName_MRZ	Document holder's last name from MRZ	
	LastName_FORMATTED	Formatted Document holder's last name from MRZ	

Scheme	Field	Field description	Comments
	FirstName_MRZ	Document holder's first name from MRZ	
	FirstName_FORMATTED	Formatted Document holder's first name from MRZ	
	Sex_MRZ	Document holder's sex from MRZ	
	DateOfBirth_MRZ	Document holder's date of birth from MRZ	
	DateOfBirth_FORMATTED	Formatted date of birth from MRZ	
	Nationality_MRZ	Nationality of the document holder from MRZ	
	DocumentType_MRZ	Document type from MRZ	
	OptionalData_MRZ_LINE1	Optional MRZ line E1	
	OptionalData_MRZ_LINE2	Optional MRZ line E2	
WorkPermit_SG_TYPE1	DocumentType	Type of permit	
	Number	Primary document number	
	Number_EX	Secondary document number	

Scheme	Field	Field description	Comments
	FullName	Document holder's full name	
	Sector	Occupation sector	
	Employer	Employer company name	
	Occupation	Occupational title	
	DateOfApplication	Work application date	
	DateOfIssue	Document issue date	
	DateOfExpiry	Document expiry date	

Regular Expressions

This section describes the regular expression syntax supported by the ABBYY Real-Time Recognition SDK engine for capturing custom data fields (see [How to Capture a Custom Data Field](#)).

Note: All matches are always greedy (match as much as possible). The search stops at the first match: if a string contains two or more substrings matching your regular expression, only the first one (closest to the beginning) is matched.

Supported syntax

Pattern	Syntax	Examples and comments
Literal	any character or text, except metacharacters <code>\^\$. ?*\+()\{\}</code>	<p><i>pill</i> matches "pill" in "caterpillar"</p> <p><i>a</i> matches the first "a" in "caterpillar" but not the second (the search stops at the first match)</p> <p>Metacharacters are part of regular expression syntax;</p>

Pattern	Syntax	Examples and comments
		to match these literally, you have to escape them with a backslash. If you want to match <code>1+1</code> , the correct expression is <code>1\+1</code> — otherwise "+" has a special meaning.
Any character	<code>.</code> (dot)	<code>s.t</code> matches "sat", "sit" but not "seat"
Character set	<code>[]</code>	<code>gr[ae]y</code> matches both "gray" and "grey" but not "greay"
Character range in a set	<code>-</code> (minus)	<code>[0-9]</code> matches a single digit concatenation is allowed: <code>[a-zA-Z0-9]</code> matches an alphanumeric character
Negated character set	<code>[^]</code>	<code>[^0-9]</code> matches anything that is not a digit
Shorthand classes	<code>\s</code> — any whitespace <code>\S</code> — anything that is not a whitespace <code>\d</code> — any digit <code>\D</code> — anything that is not a digit <code>\w</code> — a word character, which includes alphanumerics and punctuation marks <code>\W</code> — a non-word character <code>\R</code> — a new line character or the CR LF sequence <code>\v</code> — a new line character but not the CR LF sequence <code>\V</code> — a non-new line character <code>\h</code> — a horizontal white space character <code>\H</code> — anything except horizontal white space	

Pattern	Syntax	Examples and comments
Non-printable characters	\n — line feed LF \r — carriage return CR \t — tab character \f — form feed \a — bell character \u0007 \e — escape character	
Unicode character	\uFFFF \x{FFFF}	\u20AC or \x{20AC} matches the euro currency sign.
Character by its hexadecimal index	\xFF	\xA9 matches the copyright character in the Latin-1 character set
Alternation		<i>abc 123</i> matches either "abc" or "123" <i> word</i> matches either an empty string "" or "word"
Repetitions	+ * ? {n} {n,m} {n,} {,m}	+ matches once or more times * matches zero or more times ? matches zero times or once (optional match) {n} matches exactly n times {n,m} matches n to m times times {n,} matches n or more times {,m} matches zero or more times up to m Note that all repetitions are greedy (prefer to match as much as possible): <i>c.+r</i> will match "caterpillar", not stopping with "cater". If you want to match up to the first occurrence of a certain character, use its negation: <i>c[^\r]+r</i> will match "cater" in "caterpillar".

Pattern	Syntax	Examples and comments
Grouping	()	(word)+ matches "word", "wordword" and so on

Unsupported syntax

The following regular expression syntax features are not yet supported in ABBYY Real-Time Recognition SDK:

- Anchors: ^ (beginning of a line), \$ (end of a line), \b (word boundary) and its negation \B, and other.
- Lazy quantifiers such as +? or {n,m}? that prefer to match as few times as possible.
- Concatenation with nested character sets such as [[a-z][0-9]].
- Advanced features such as lookarounds, backreferences, possessive matches, named groups, non-capturing and atomic match groups, evaluation flag settings and other.

Copyright and Trademark Notices

ABBYY® Real-Time Recognition SDK 1 © 2016 ABBYY Production LLC.

ABBYY is either a registered trademark or a trademark of ABBYY Software Ltd.

Working with JPEG image format:

This software is based in part on the work of the Independent JPEG Group.

Libtiff:

Copyright (c) 1988-1997 Sam Leffler

Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that (i) the above copyright notices and this permission notice appear in all copies of the software and related documentation, and (ii) the names of Sam Leffler and Silicon Graphics may not be used in any advertising or publicity relating to the software without the specific, prior written permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Libwebp:

Copyright (c) 2010, Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer;
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution;
- Neither the name of Google nor the names of its contributors may be used to endorse or promote

products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Protobuf:

This license applies to all parts of Protocol Buffers except the following:

- Atomicops support for generic gcc, located in
src/google/protobuf/stubs/atomicops_internals_generic_gcc.h.
This file is copyrighted by Red Hat Inc.
- Atomicops support for AIX/POWER, located in
src/google/protobuf/stubs/atomicops_internals_power.h.
This file is copyrighted by Bloomberg Finance LP.

Copyright 2014, Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer;
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner of the input file used when generating it. This code is not standalone and requires a support library to be linked with it. This support library is itself covered by the above license.

Libzip:

Copyright (C) 1999-2014 Dieter Baron and Thomas Klausner

The authors can be contacted at [<libzip@nih.at>](mailto:libzip@nih.at)

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The names of the authors may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Eigen:

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, you can obtain one at <https://mozilla.org/MPL/2.0/>.

All other trademarks and copyrights are the property of their respective owners.

Contact ABBYY

In this section you can find the contacts of ABBYY sales offices and technical support.

How to Buy

You can order ABBYY Real-Time Recognition SDK or other ABBYY products by contacting our offices at the following addresses:

- ABBYY Russia: engine@abbyy.com
- ABBYY Northern American Headquarters: sales@abbyyusa.com
- ABBYY European Headquarters: engine_eu@abbyy.com
- ABBYY Eastern European Headquarters: sdk@abbyy.ua
- ABBYY 3A (Asia, Africa and South America): sales_3A@abbyy.com

Technical Support

If you have any questions regarding the use of ABBYY Real-Time Recognition SDK, first of all consult this Developer's Guide. Useful information can also be found in the [technical support](#) section of the ABBYY website.

If you cannot find the answer to your question, please contact the [ABBYY office](#) serving your region by e-mail. Please provide the following information when contacting technical support:

- your first and last name
- the name of your organization
- your phone number (or fax, or e-mail)
- the serial number of your license
- the ABBYY Real-Time Recognition SDK build number
- a description of the problem
- a project that demonstrates the problem (with the necessary data files). This may be a slightly modified ABBYY Real-Time Recognition SDK sample. We recommend that you compress the files using any popular archiving program (WinZIP, WinRAR, etc.)
- the name of your development tool
- the type of your device and processor
- the version of your operating system

You can also provide any additional information you consider important.

Support contacts

North/Central Americas

Customers from USA, Canada, Japan, Mexico or other Central American countries, please contact ABBYY North American Headquarters at dev_support@abbyyusa.com

Western Europe

Customers from Austria, Benelux, Denmark, France, Germany, Italy, Ireland, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom or other Western European countries, please contact ABBYY European Headquarters at TechSupport_eu@abbyy.com

**Eastern Europe and the
Mediterranean**

Customers from Ukraine, Moldova, Turkey, Israel or Eastern European countries, please contact ABBYY Eastern European Headquarters at engine_support@abbyy.ua

All other regions

Customers from the countries not mentioned above, please contact ABBYY International Headquarters at SDK_Support@abbyy.com