ADAPTIVE RECOGNITION

PASSPORT READERS & ID SCANNERS

Reference Manual

Passport Reader
Data Fields

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Document version: 2021-03-05

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1. INTRODUCTION

The Passport Reader system returns all OCR, RFID, barcode and basically all kinds of results as fields. For better understanding, this document classifies fields into four logical groups:

- General data fields: results of OCR, barcode-, and RFID reading processes
- Authentication fields: results of optical and RFID authentications
- Document type identification fields: data returned from the OCR engine database
- Image only fields that contain biometric data

In general, fields have three main components: an identifier called as "**field reference**", **value** and **status**.

2. FIELD REFERENCE

The field reference specifies the role and source of the field. E.g., Birthdate from the Machine-Readable Zone. The field reference consists of **source**, **ID** and **index**.

2.1. SOURCE

The various data **sources** have special characteristics concerning the data. Because of this, they play an important role in field identification. These special characteristics are the following:

- MRZ – has checksum, only uppercase, no accents
- VIZ – no error detection, lower/uppercase and accents are possible
- BCR – error correction, lower/uppercase and accents are possible
- MSR – has checksum, lower/uppercase are possible
- RFID – error correction, lower/uppercase and accents are possible

2.2. ID

The **ID**, is a named identifier that specifies the meaning of the field e.g., BirthDate or Surname. Those fields that are typically present on most document types or have significant meaning, have named IDs. Other fields that are unique or specific, are identified as "Composite" (for general data fields) or "Authenticity" (for authentication fields) followed by an ordinal number e.g., Composite1, Authenticity2, etc.

2.3. INDEX

The **index** is an ordinal number with a purpose to distinguish fields having the same ID and source.

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3.   FIELD VALUE

Most fields have textual values of three kinds: **raw**, **formatted** and **standardized**. It varies which value a field may contain. Even all three values can be available for the same field.

The following table will show you some typical examples. The detailed explanation can be found in the subchapters.

	Basic	Raw	Formatted	Standardized	Best
IssueCountry	SI<	SI<	SI	SVN	SVN
BirthDate	9201154	9201154	19920115	1992-01-15	1992-01-15
Authenticity 11	750		750	750	750
Name	KARPATI<<VIK TORIA<<<<<	KARPATI<<VIK TORIA<<<<<	KARPATI VIKTORIA		KARPATI VIKTORIA

3.1.   RAW

Raw: as it is read, including checksum and filler characters. Raw value is empty when the data of a field is not read but produced logically e.g., VIZ authentication field and Document type identification fields.
In the above example for Raw value: the checksum of the birthdate is 4.

3.2.   FORMATTED

Formatted: value without checksums and filler characters. Authentication fields and Document type identification field values are available in formatted form. The values of the authentication fields are in thousandths.

3.3. STANDARDIZED

Standardized: Using a standard, the field is converted to a format to ease further processing of data. Such format is document type independent thus can be compared to other documents and/or converted to other forms easily.

3.4. BASIC AND BEST

For getting data in any available text format, we introduced two format concepts called **Basic** and **Best**. When the **Basic** value is queried, the returned value is the least modified format: the first that is available in order of raw, formatted and standardized values. The **Best** value uses the opposite logic of selection. It returns the most processed format: the first that is available in order of standardized, formatted and raw values.

3.5. BINARY

If the value of a field cannot be converted into text (e.g., 2D barcode data or RFID face photo image file), it is returned as a **binary** value.

3.6. NO VALUE

Image only fields e.g., "VIZ Face" has no value.

4. FIELD STATUS

For every field, a so-called status is returned. This status represents the overall result of various checks performed by the Passport Reader system. These checks are the following:

- Various checksum algorithms
- Format check (syntax)
- Date verification

For certain fields, a list of checking details is also available.

5. OTHER

5.1. FIELD FRAME

The field frame is a group of coordinates that specify an area of the scanned image (field image). Adjusted to the field's direction, the first ordered pair marks the top left corner. The other ordered pairs follow in clockwise order. The numerical values of the coordinates show if the field is rotated in the image.

5.2. FIELD IMAGE

The field image is a raw image of the field that can be displayed or saved.

According to their sources, field images can be of two types:

Those fields that are returned by an optical algorithm are cropped and rotated sections of the scanned image that contains the field itself. E.g., a picture of "P<" as the first two characters of a Passport MRZ.

Other fields contain image files read from RFID chips. E.g., RFID face photo. These fields return the original, not recompressed image file in the Binary Value.

5.3. LIGHT

Fields that are returned by an optical algorithm also have the light characteristic. This specifies the illumination that was used to read the field.

5.4. AMID

AMID refers to "Authentication Method Identifier" that is detailed in BSI TR-03135, section "spectrally selective check routines". The purpose of AMID is to describe all optical authentication fields.

5.5. SAMPLE IMAGE

Authentication engines contain image database to visually compare VIZ authentication fields. Images in this database are called sample image. Sample image is a raw image that contains the reference image of the field.

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