fahrzeugschein DIGITAL

Content

Description of the REST Interface

Revision 3.4

REST interface for AI-based evaluation of German vehicle registration certificates part 1 (VRS1) - "Zulassungsbescheinigungen Teil 1 (ZB1)" in German.

Endpoint

The api is available at https://api.fahrzeugschein-digital.de.

Authentication

Authentication is done at request level via a predefined API token. The token is provided with your user account details. The token can be sent with each API request either in the JSON body as **api_token** parameter or in the header as **Authorization: Bearer** .

Response

Data is returned in structured JSON-format.

Usage hints

The following hints apply to all api-routes.

Supported image formats

JPEG, **PNG** and **PDF** are supported as input formats. The data must be base64 encoded for transfer to the interface.

Recommended resolution

A maximum resolution of 1920 x 1080 pixels is recommended. Higher resolutions do not improve the quality of the read-out data, but extend the runtimes of the evaluation. Furthermore, image files are supported in both RGB and CMYK color space.

Image data in PDF

Image data transferred as PDF is converted to pixel data by the interface before evaluation, and the runtime of the evaluation is extended accordingly. A maximum resolution of 1920 x 1080 pixels is also recommended here.

File size

The max. file size is 20 MByte. Larger files may be rejected by the server depending on the image format or compression level.

Routes

Analysis of the vehicle registration certificates

Selects data of the vehicle registration certificates formatted as Picture or PDF and returns a machine-readable readable JSON.

path	/api/v1/zb1
type	POST
Accepted	application/json

Parameters

Parameter	type	comment
image	string	base64 coded image data (see below)
application	string	name of requesting application (optional)
ref_nr	string	Reference number of the API client for billing purposes (optional)

Request Example

```
POST /api/v1/zb1 HTTP/1.1
Host: api.fahrzeugschein-digital.de
Authorization: Bearer c31fdfb...
Content-Type: application/json
Accept: application/json

{
  "image": "/9j/4AAQSkZJRgABAQEASABIAAD/...",
  "application": "api-demo-client"
}
```

Returned information

The output contains objects with value pairs for the following read fields:

identifier	content (GER)	content (ENG)	figure VRS1	comment
vorname	Vorname(n) des Halters	Owner First name(s)	C1.2	
strasse	Straße Halteranschrift	Owner address street	C1.3	
plz	Postleitzahl Halteranschrift	Owner address zip code	C1.3	
ort	Wohnort Halteranschrift	Owner address city	C1.3	
name	Name oder Firmenname des Halters	Owner last name or company name	C1.1	
letzte_zulassung	Datum der Zulassung (auf den Halter)	Date of registration (current owner)	I	day, year and month in format DD.MM.YYYY
kraftstoff_code	Code der Kraftstoffart	Code of the fuel type	10	contains plain text to value
kennzeichen	Amtliches Kennzeichen	Official license plate	A	
hsn_tsn_pruefziffer	Prüfziffer zu HSN/TSN	HSN/TSN check digit	2.2	
hsn_tsn	Hersteller und Typschlüssel (HSN/TSN)	Manufacturer- and type code (HSN/TSN)	2.2	Manufacturer-, type and variant code combined
fin_pruefziffer	Prüfziffer der FIN	VIN check digit	3	
fin	Fahrzeug-Identifizierungsnummer (FIN)	Vehicle identification number (VIN)	E	
emissionsklasse	Schlüssel der Emissionsklasse	Emission class code	14.1	contains plain text to value
datum_erstzulassung_lang	Datum der Erstzulassung (Lang)	Date of first registration (long)	B	day, year and month in format YYYY- MM-DD

identifier	content (GER)	content (ENG)	figure VRS1	comment
datum_erstzulassung	Datum der Erstzulassung	Date of first registration	B	Year an month in format YYYY-MM
bereifung_achse_2	Bereifung der 2. Achse	Tires 2nd axle	15.2	
bereifung_achse_1	Bereifung der 1. Achse	Tires 1st axle	15.1	

note: The scope of available fields depends on the booked service.

Each object contains an array of up to 5 value pairs. Each value pair contains the read value in **value** and the **probability** between 0.0 and 1.0. The value pairs are sorted by descending probability. Objects like emission class (14.1) and fuel type code (10) also contain plain text values in **text** if the value could be matched. The value pairs are sorted by descending probability.

Information provided from database

In addition to the values detected by the AI, additional data is provided via mappings from a database. These values depend on the detected manufacturer/type combination. The values with the highest probability will be returned as **fahrzeugdaten** (vehicle data) in the JSON response:

identifier	content (GER)	content (ENG)	figure VRS1	comment
fahrzeugklasse	Fahrzeugklasse	Vehicle class	J	only in AddOn "THG-Quote"
code_aufbau	Aufbauart	Vehicle setup	4	only in Addon "Premium"
hubraum	Hubraum in ccm	Engine capacity in ccm	P.1	only in Addon "Premium"
nennleistung	Leistung in kW	Engine power in kW	P.2	only in Addon "Premium"
anzahl_sitze	Anzahl Sitzplätze	No. of seats	S.1	only in Addon "Premium"

note: The data is based on values from a database and **not** read by AI. These values may vary and can be different than the ones on the VRS1. In case the database does not contain matching values to the manufacturer/type combination the object **fahrzeugdaten** will be returned as **null** for all objects.

note: These Objects will only be returned in combination with booked Addon "THG-Quote" or "Premium".

Return sample

note: Some fields are anonymized for data protection reasons.


```
{
    "fin": [
        {
            "value": "5YJ3E7EB5MF8*****",
            "probability": 0.999995437621136
        },
        {
            "value": "5YJ3BE7EB5MF8*****",
            "probability": 0.0000045449294300365
        }
    ],
    "hsn_tsn": [
        {
            "value": "1480AAR00034",
            "probability": 0.9999999986025555
        },
        {
            "value": "14801AAR000348",
            "probability": 5.411684442917762e-10
        },
        {
            "value": "14803AAR000348",
            "probability": 3.1206242919110646e-10
        },
        {
            "value": "1480AaR00034",
            "probability": 2.764110104229654e-10
        },
        {
            "value": "1480AAR0003481",
            "probability": 2.2242942954406802e-10
        }
    ],
    "datum_erstzulassung": [
        {
            "value": "2021-04",
            "probability": 0.999999993610868
        },
        {
            "value": "021-04",
            "probability": 3.1093732120219785e-9
        },
        {
            "value": "20221-04",
            "probability": 2.851687449066562e-9
        },
        {
            "value": "20212-04",
```

```
            "probability": 4.277405357847194e-10
        }
    ],
    "emissionsklasse": [
        {
            "value": "30AX",
            "text": "2017\/1151;WLTP;reine Elek",
            "probability": 0.9999927282333374
        },
        {
            "value": "E0AX",
            "text": "",
            "probability": 1.9101050838798983e-06
        },
        {
            "value": "830AX",
            "text": "",
            "probability": 1.6064279861893738e-06
        },
        {
            "value": ".30AX",
            "text": "",
            "probability": 1.5370355868071783e-06
        },
        {
            "value": "30AxX",
            "text": "",
            "probability": 8.61134807905728e-08
        }
    ],
    "kennzeichen": [
        {
            "value": "B-DEMO84E",
            "probability": 0.9999588361870292
        },
        {
            "value": "BE-DEMO84E",
            "probability": 0.00002131921258179252
        },
        {
            "value": "E-DEMO84E",
            "probability": 0.000019836227351998848
        },
        {
            "value": "B-DEMO84EE",
            "probability": 5.0179189977179945e-9
        },
        {
            "value": "B-CO-3484E",
            "probability": 3.3475388048663257e-9
        }
    ],
    "name": [
        {
```

```
            "value": "Musterfau",
            "probability": 0.999916398446505
        },
        {
            "value": "Musterfru",
            "probability": 0.000030387654724243512
        },
        {
            "value": "musterfru",
            "probability": 0.000025094490873586625
        },
        {
            "value": "Msterfrau",
            "probability": 0.000014770583611903432
        },
        {
            "value": "Masterfru",
            "probability": 0.000013074758775721508
        }
    ],
    "ort": [
        {
            "value": "Berlin",
            "probability": 0.9999987741552354
        },
        {
            "value": "Serlin",
            "probability": 3.696550612315868e-7
        },
        {
            "value": "Beerlin",
            "probability": 3.0787517867429377e-7
        },
        {
            "value": "Bealin",
            "probability": 2.8486621239941066e-7
        },
        {
            "value": "Berlinl",
            "probability": 2.5765755656333405e-7
        }
    ],
    "plz": [
        {
            "value": "10249",
            "probability": 0.9996410069076189
        },
        {
            "value": "20249",
            "probability": 0.00034653654648132497
        },
        {
            "value": "40249",
            "probability": 0.000008648880552620625
```

```
        },
        {
            "value": "11249",
            "probability": 0.0000036972724510422765
        },
        {
            "value": "10248",
            "probability": 1.1039135513803579e-7
        }
    ],
    "strasse": [
        {
            "value": "Musterstr. 87",
            "probability": 0.9999077562487471
        },
        {
            "value": "Musterstr. 867",
            "probability": 0.000048069266561069384
        },
        {
            "value": "Musterstr. 687",
            "probability": 0.00004361206555113874
        },
        {
            "value": "Musterstr. 87r",
            "probability": 1.315740797764134e-7
        },
        {
            "value": "Musterstr. 87G",
            "probability": 9.632102184121501e-8
        }
    ],
    "vorname": [
        {
            "value": "Erika",
            "probability": 0.9992732388327541
        },
        {
            "value": "Erka",
            "probability": 0.0004333828871731727
        },
        {
            "value": "Rika",
            "probability": 0.00015625352410761963
        },
        {
            "value": "Rikar",
            "probability": 0.00013223719662726485
        },
        {
            "value": "Rike",
            "probability": 0.00004886960430415 37
        }
    ],
```

```
    "datum_erstzulassung_lang": [
        {
            "value": "2021-04-06",
            "probability": 0.9999999909509864
        },
        {
            "value": "021-04-06",
            "probability": 3.1093732120219785e-9
        },
        {
            "value": "20221-04-06",
            "probability": 2.851687449066562e-9
        },
        {
            "value": "2021-04-66",
            "probability": 2.6598816525581365e-9
        },
        {
            "value": "20212-04-06",
            "probability": 4.277405357847194e-10
        }
    ],
    "fin_pruefziffer": [
        {
            "value": "7",
            "probability": 0.9999644145866042
        },
        {
            "value": "-",
            "probability": 0.00003554066590657685
        },
        {
            "value": "1",
            "probability": 1.760282302783749e-8
        },
        {
            "value": "3",
            "probability": 9.695232213952844e-9
        }
    ],
    "hsn_tsn_pruefziffer": [
        {
            "value": "8",
            "probability": 0.9999999988789665
        },
        {
            "value": "-",
            "probability": 1.0756603030269507e-9
        }
    ],
    "kraftstoff_code": [
        {
            "value": "0004",
            "text": "Elektro",
```

```
            "probability": 0.999939501285553
        },
        {
            "value": "D004",
            "text": "",
            "probability": 0.000006963669420656515
        },
        {
            "value": "00014",
            "text": "",
            "probability": 0.000005030161901231622
        },
        {
            "value": "00041",
            "text": "",
            "probability": 0.000004508608071773779
        },
        {
            "value": "000",
            "text": "",
            "probability": 0.000002691185727599077
        }
    ],
    "letzte_zulassung": [
        {
            "value": "06.04.2021",
            "probability": 0.9972420334815979
        },
        {
            "value": "16.04.2021",
            "probability": 0.0003474000550340861
        },
        {
            "value": "06.05.2021",
            "probability": 0.00027550471713766456
        },
        {
            "value": "26.04.2021",
            "probability": 0.0002613761753309518
        },
        {
            "value": "06.14.2021",
            "probability": 0.00021227063552942127
        }
    ],
    "fahrzeugdaten": {
        "fahrzeugklasse": "M1",
        "code_aufbau": "AC",
        "hubraum": 1598,
        "nennleistung": 72,
        "anzahl_sitze": 5
    }
}
```

Analysis of vehicle registration certificates with image sections

note: This route will only be available in combination with a booked "Referenz-Bildausschnitte" addon.

Selects data of the VRS1 formatted as picture or PDF and returns a machine-readable JSON. Furthermore the returned data includes base64 coded image sections for each determined field on the VRS1. Image Sections can be used for visualization.

path	/api/v1/zb1/snippets
type	POST
Accepted	application/json

Parameters

Parameters	type	comment
image	string	base64 coded image data (see below)
application	string	name of requesting application (optional)
ref_nr	string	Reference number of the API client for billing purposes (optional)

Request Example

```
POST /api/v1/zb1/snippets HTTP/1.1
Host: api.fahrzeugschein-digital.de
Authorization: Bearer c31fdfb...
Content-Type: application/json
Accept: application/json

{
  "image": "/9j/4AAQSkZJRgABAQEASABIAAD/...",
  "application": "api-demo-client"
}
```

Returned information

The List of returned information and structure of the JSON Response are equivalent to the route without image sections. Additionally for each value a new field with the suffix **_snippet** is added. This contains the base64 coded image section that was recognized

Return sample


```
{
    "fin": [
        {
            "value": "WVWZZZ1KZBM63****",
            "probability": 0.9997823605626805
        },
        {
            "value": "WVWZZZ1KZ8M63****",
            "probability": 0.00013739305034650 91
        },
        {
            "value": "WVWZZZ1KZBM63****",
            "probability": 4.4675234472677556e-5
        },
        {
            "value": "WVWZZZ1KZbM63****",
            "probability": 3.5152547117168815e-5
        }
    ],
    "fin_snippet": "\/9j\/4AAQSkZJRgABAQAAAQABAAD\/2wBDAAU...
}
```