

# HRDF realisation guide – Swiss public transport system

Based on HAFAS raw data format 5.20.39

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Translation	System leadership passenger information / Systemaufgaben Kundeninformation (SKI) In the event of discrepancies between the various language versions, the German version shall be deemed binding.

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### Change history from V 1.0 to tbd

Section	Change	Editor	Date
Kap. tbd	tbd	tbd	tbd

### Approval status:

Version	Date	Status
1.0	18.05.2018	Reviewed by the IT committee and recommended for approval
1.0	24.10.2018	Approved and declared binding by SKI Mgmt Board
1.0.1	16.01.2019	Translation from German

# 1 Introduction

## 1.1 Initial situation

The KIDS working group has worked intensively with the real-time interfaces, especially VDV453 and VDV454. In the course of that work, there were various supplement and change requests for the VDV concerning the corresponding VDV guidelines.

The *realisation guide for the Swiss public transport system* were developed in order to clarify points that still leave room for interpretation in the VDV guidelines and to define specific deviations from the VDV guidelines (for the CUS real-time data platform).

Such documents (and committees) are lacking for the target data, especially for data exchange with the National Timetable Collection. This document aims to close the gap in realisation guide for target data.

## 1.2 Basic format and deviations

The basis is document "HAFAS raw data format" version 5.20.39 [1]. HAFAS raw data format is hereinafter referred to by the acronym HRDF.

HRDF is a proprietary format from HaCon. If deviations from the specified format are necessary, it should be ensured that additions suit the framework conditions of the format.

The following variants are currently in use:

- a) Additions outside of existing raw data files: The data not defined in HAFAS raw data format is stored in additional files. For example, the file "FEIERTAGE". These additions are marked in this document as "outside of the HAFAS raw data format". The addition must be designed so that data recipients can distribute correct information without using additional files.
- b) Additions and changes to existing raw data files: There are two sub-variants here:
  - b1. Additions and changes can be inserted compatibly (e.g. using columns that are not (or no longer) in use): The corresponding raw data files can be extended accordingly after consulting HaCon. The feedback should ensure in particular that the function of existing HaCon programs is not affected by the addition. The addition must also be designed so that data recipients can distribute correct information without using additional data.
  - b2. Additions and changes cannot be inserted compatibly: In this case two files are to be created: one file that is compatible with the original definition but does not contain the addition, and a second file with the incompatible additions. For example, the files "UMSTEIGZ" and "UMSTEIGZ with transport days". In this case, too, the addition must be designed so that data recipients can distribute correct information without using the incompatible files.

## 1.3 Referenced documents

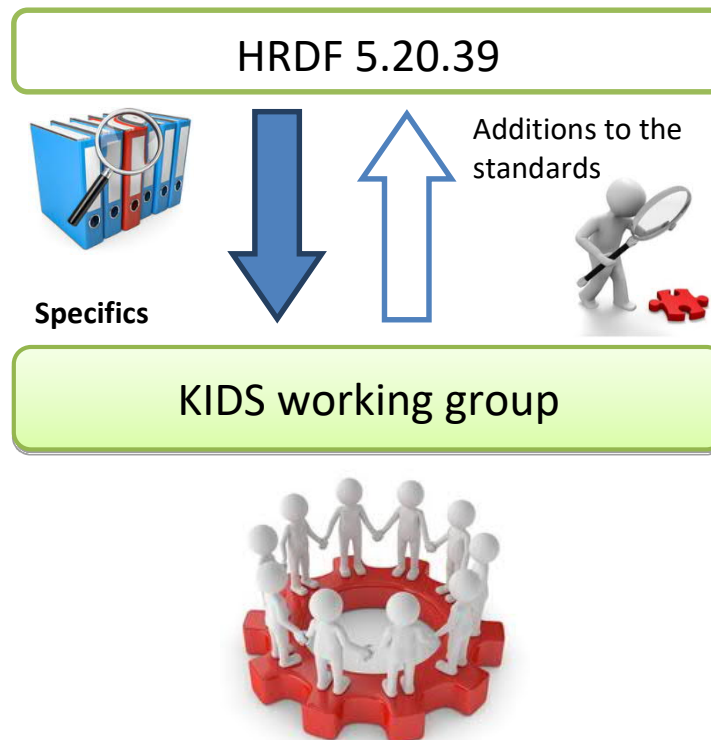
- [1] HaCon Ingenieurgesellschaft mbH, Lister Str. 15, 30163 Hanover, Germany  
**HAFAS raw data format, version 5.20.39**
- [2] HaCon Ingenieurgesellschaft mbH, Lister Str. 15, 30163 Hanover, Germany  
**HAFAS raw data format, version 5.40.xx**
- [3] "Harmonisation of transport categories" (ad hoc working group)  
**Harmonisation of transport categories**, current version (21/11/2017): X8.7

## 2 Structure of the document

### 2.1 Document hierarchy and stakeholders

Based on the official HRDR STANDARD [1], this document describes the realisation guide for the Swiss public transport system, hereinafter referred to as the “RV HRDF”.

It contains specifics and deviations from the basis (HRDF STANDARD [1]), with the aim of achieving uniform application across the entire Swiss public transport system.



### Realisation guide HRDF-RV as a shared basis in the Swiss public transport system

**Figure 1: Interrelations between KIDS and VDV**

The realisation guide in this document have been agreed upon by the KIDS working group “Kundeninformationsdaten-Schnittstellen” (customer information data interface) in the Swiss public transport system. They are the result of a UAG target data standardisation process that concerns the uniform application of HRDF guidelines across the Swiss public transport system.

The realisation guide are officially approved by the IT committee of the ch-direct.

Document hierarchy: In the course of clarifying a matter, documents shall take precedence in the following order, specifically:

1. Direct agreements between partners
2. “HRDF realisation guide – Swiss public transport system” (this document)
3. HRDF STANDARD or HRDF 5.40 (HAFAS raw data version 5.40)

#### Stakeholders:

Suppliers to the national timetable collection:

- Transport companies

Recipients of data from the national timetable collection:

- Transport companies
- Industry (open)

Other stakeholders:



- Various committees

## 2.2 Information about this document

Starting with section 5, this document adopts the chapter structure of document [1]. A blank section in this document means that document [1] applies in full.

In all cases there may be different behaviour defined for import and export, import meaning the transfer of data into the national timetable collection and export meaning the extraction of data from the national timetable collection.

### 3 Overview of timetable publication

#### 3.1 Roles and responsibilities

Different agencies are involved with timetable publication and have different roles and responsibilities. The following figure shows a rough overview of the interaction between the agencies involved.

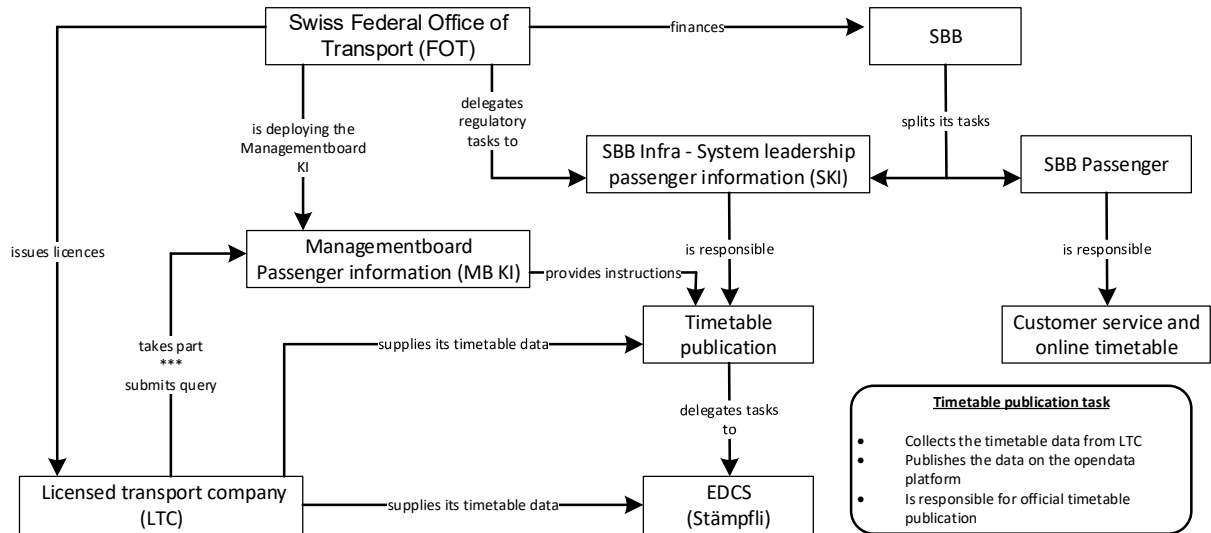


Figure 2: Overview of responsibilities

#### 3.2 Data flow

Timetable data is exchanged in the course of publishing the timetables. The following figure shows a rough view of the data flow.

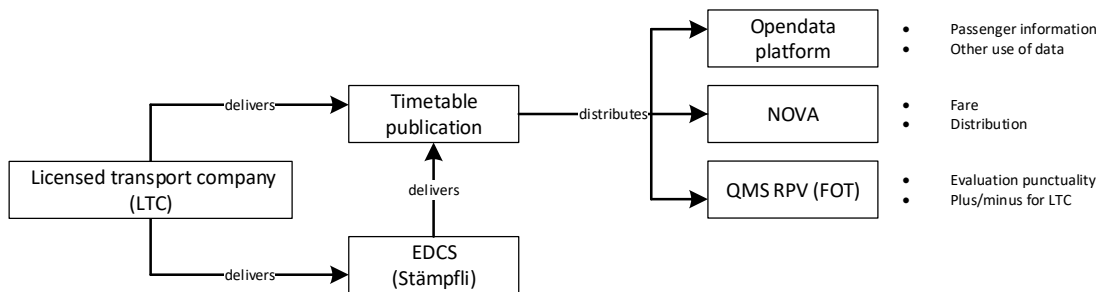


Figure 3: Overview of data flow

## 4 Superordinate topics

### 4.1 File names

File names are based on the suggested name of the specification (FPLAN, BAHNHOF, ATTRIBUT, etc.)  
 The file ending can be freely selected. Changes must be mutually agreed upon.

### 4.2 Display of stop codes

**Table 1: HRDF designates the following stop codes**

Designation	Example
Regular stop (no negative time, shows a missing arrival or departure time at the start and end)	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 8500010 Basel SBB 01515 <b>8500023 Liestal 01526 01527</b> 8500026 Sissach 01532
Drop-off only stop (negative time for boarding)	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 8500010 Basel SBB 01515 <b>8500023 Liestal 01526 -01527</b> 8500026 Sissach 01532
Pick-up only stop (negative time for disembarking)	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 8500010 Basel SBB 01515 <b>8500023 Liestal -01526 01527</b> 8500026 Sissach 01532
Transit (negative, identical times)  Via (tourist route information) is also displayed in this way (e.g. Gotthard, Neubaustrecke, etc.)	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 8500010 Basel SBB 01515 <b>8500023 Liestal -01526 -01526</b> 8500026 Sissach 01532
Service stop (negative, different times)	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 8500010 Basel SBB 01515 <b>8500023 Liestal -01526 -01527</b> 8500026 Sissach 01532
Request stop	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 <b>*A X 8500023 8500023</b> 8500010 Basel SBB 01515 8500023 Liestal 01526 01527 8500026 Sissach 01532
Seasonal stop (an *SH line is inserted for the affected BP)	*Z 02471 85____ 01 *G IR 8500010 8500026 *A VE 8500010 8500026 000000 <b>*SH 8500023 165258</b> 8500010 Basel SBB 01515 8500023 Liestal 01526 01527 8500026 Sissach 01532

### 4.3 Optional fields

If an optional field is not specified, this means that no information is available for this object. If this statement is not sufficient, the documents in the hierarchy must be consulted (see section 2.1).



Direkter Verkehr Schweiz  
Service direct suisse  
Servizio diretto svizzero  
Servetsch direct Svizra

---

#### 4.4 Comments

Text that is added after the comment sign (% , percent sign) must not contain any relevant information. Comments are used to add clarifications if a file is inspected or edited manually. It must be assumed that comments (including the comment sign) may be lost or changed in import or export processes.

## 5 Necessary files

### 5.1 The stop directory BAHNHOF

Identical to standard.

**Table 2: Specifics of BAHNHOF**

Column	Type	Meaning	Note
1-7	INT32	The number of the stop	DiDok-Nr
9-11	CHAR	Blank	
13-62	CHAR	Stop name	Export: Stop names are delivered with a type (type in angle brackets following the item): <1> Name (max. 30 characters) <2> Long name (max. 50 characters) <3> Abbreviation <4> Synonym/alias

Example for export:

```
8503016    Zürich Flughafen$<1>$ZFH$<3>$Zurich Airport$<4>$Zurigo Aeroporto$<4>
8504350    Biel/Bienne Leubringenb. (Funi)$<1>$Biel/Bienne Leubringenbahn (Funi)$<2>
```

Import for train station: The individual stops in the train station file are not adopted when importing into INFO+. DiDok is the master.

DiDok numbers (meaning the seven digit numbers with country code 85 at the start): Stops at which passengers can board or disembark must have a valid DiDok no. Tourist “Via” information (fictional via’s), meta-BP and boundary points are excluded from this rule, but application of this rule is recommended even for these objects.

Limitation: matching of stops with real-time data: Stipulations, best practice examples, etc. are not covered in this document.

Stop aliases: Do not come from DiDok, but are entered in INFO+.

### 5.2 Stop coordination BFKOORD (and BFKOORD\_GEO)

#### 5.2.1 General

Two BFKOORD files are written during an INFO+ export: one in LV03 format and one in WGS84 format. To differentiate the files, the WGS84 file name has “\_GEO” added to it.

Importing coordinates: No coordinates are imported. DiDok is the master.

Validity of LV03 coordinates: Only valid for stops and train stations in Switzerland and neighbouring areas.

WGS84 coordinates: If regions outside of Switzerland and neighbouring areas are to be included, the WGS84 coordinates must be used (file BFKOORD\_GEO).

#### 5.2.2 BFKOORD

Format matches the standard.

**Table 3: Specifics of BFKOORD**

Column	Type	Meaning	Note
1-7	INT32	Die Nummer der Haltestelle	
9-18	FLOAT	Y-Koordinate*	LV03 format (Swiss Grid), NNN.nnn, right-aligned, in kilometres.
20-29	FLOAT	X-Koordinate*	LV03 format (Swiss Grid), NNN.nnn, right-aligned, in kilometres.



Column	Type	Meaning	Note
31-36	INT16	Z-Koordinate	Altitude in metres, left-aligned, optional (can be blank).
38ff	CHAR	Haltestellenname	Optional. For easier reading only

\* X and Y-coordinates are switched. This means that in LV03 format, the X-axis corresponds to the Y-axis.

The LV03 format is a coordinate system with a right-angled reference system.

Due to legal stipulations there are plans to replace this format with LV95 in the medium term.

Example:

```
8594320 644.757 163.893 952 % Grindelwald, Säge Grund
8594321 644.682 166.360 1554 % Grindelwald, Raschthysi
8594322 645.377 165.492 1620 % Grindelwald, Nodhalten
8507000 600.037 199.749 540 % Bern
```

### 5.2.3 BFKOORD\_GEO

Format matches the standard.

**Table 4: Specifics of BFKOORD\_GEO**

Column	Type	Meaning	Note
1-7	INT32	The number of the stop	
9-18	FLOAT	X-coordinate, longitude	WGS84 format, [-]NNN.nnnnnn, right-aligned
20-29	FLOAT	Y-coordinate, latitude	WGS84 format, [-]NN.nnnnnn, right-aligned
31-36	INT16	Z-coordinate	Altitude in metres, left-aligned
38ff	CHAR	Stop name	Optional. For easier reading only

Example:

```
8594320 8.023027 46.624791 952 % Grindelwald, Säge Grund
8594321 8.022287 46.646987 1554 % Grindelwald, Raschthysi
8594322 8.031279 46.639133 1620 % Grindelwald, Nodhalten
2096240 132.500336 49.015539 0 % Budukan
7120212 -7.060702 42.411763 0 % Villamartin de Valdeorras
```

WGS84 is a coordinate system with degrees of longitude and latitude.

### 5.3 The timetable FPLAN

In the INFO+ export for each line in the FPLAN file, the comment at the end of the line shall be structured according to the following rule: During import the comment line is not evaluated.

**Table 5: FPLAN**

Column	Type	Meaning	Note
59	CHAR	%	Output for all lines. Except *KWZ
61ff	INT32	Internal run ID	Only output for *Z line

FPLAN structure: A journey begins with a \*Z line. Then all \* lines follow – except \*KW and \*KWZ – in no particular order. The route lines follow, which must be in chronological order. Finally, the \*KW or \*KWZ lines, if any, come at the end.

#### 5.3.1 Journey description

Format matches the standard.

### 5.3.2 \*Z lines

Format does not match the standard exactly.

**Table 6: Specifics and deviations of \*Z lines**

Column	Type	Meaning	Note
1-2	CHAR	*Z	
4-8	INT32	Journey number	In NAV the train number/journey number is a unique number – per delivery – within an administration. Interpretations of the journey number in NAV that go beyond that are strongly discouraged.
10-15	CHAR	Administration	As per DiDok for Swiss administration. As per master data INFO+ for international administration
16-18	Leer	Blank	
19-21	INT16	Option	Number of transport option. (Not a standard HRDF field). Does not have any technical importance
23-25	INT16	(optional) Number of cycles; indicates the number of cycles still to follow	
27-29	INT16	(optional) Cycle time in minutes (distance between two journeys)	

Example:

\*Z 21792 000081 003

% 182942274

### 5.3.3 \*T lines

Not supported.

### 5.3.4 \*G lines

Format matches the standard.

In future the abbreviations of the offer categories as used in the result of the “Harmonisation of transport categories” working group shall be used as categories.

### 5.3.5 \*A VE lines

Format matches the standard.

Daily: If the transport days are to be communicated as daily, the \*A VE field remains blank (i.e. bit field number equal to empty or 000000).

### 5.3.6 \*A lines (optional)

Format matches the standard.

External attributes: Impermissible attributes are mapped to permissible attributes during the INFO+ import as far as this is practical. Unmapped external attributes are deleted during the INFO+ import. INFO+ exports permissible attributes only.

### 5.3.7 \*I lines (optional)

Format matches the standard.

**Table 7: Specifics of \*I lines**

Column	Type	Meaning	Note
1-2	CHAR	*I	
4-5	CHAR	Informational text code	XI (XML) is not supported.
7-13	[#]INT32	(optional) Stop number from which the informational text applies.	
15-21	[#]INT32	(optional) Stop number up to which	



Column	Type	Meaning	Note
		the informational text applies.	
23-28	INT16	Bit field number for the days on which the informational text applies.	If this information is missing, the informational text always applies.
30-36	INT32	Informational text number.	Reference to entry/line in INFOTEXT file.
38-43	[#]INT32	(optional) Departure time.	
45-50	[#]INT32	(optional) Arrival time.	

Example:

\*I ZN 8010366 8010097 0002905 %

INFO+ import: Delivered informational text is imported in INFO+ if a valid code is used. Impermissible informational text codes are mapped to available codes, as far as this is practical; otherwise they are omitted. INFO+ exports permissible `INFOTEXT` codes only.

Notes as informational text: Notes for which there are no suitable attributes can be defined as purely informational text. The code “hi” must be used for this purpose. These notes are imported into INFO+.

Number range for informational text numbers: INFO+ uses the info text number range 1 to 8,999,999. The remaining numbers can be used freely by recipients which mix in additional data.

### 5.3.8 \*L line (optional)

Format matches the standard.

Line designation published for the passenger: Entered in the \*L line (e.g. \*L S5).

Combined line designations are currently still accepted (e.g. \*G S and \*L 5).

### 5.3.9 \*R line (optional)

Format matches the standard.

Standard direction: INFO+ inserts the value “\*R” (without further information) during an export if no explicit direction information is available. The value “\*R” causes the last stop in the journey to be displayed as the direction:

\*R %

IDs recognised at the moment: {\*R H, \*R R} (preferred), {\*R 0, \*R 1} {\*R 1, \*R 2}, additionally \*R 5 and \*R 6

Direction numbers: INFO+ has the direction number range with the prefix “R”. The remaining numbers can be used freely by recipients.

### 5.3.10 \*GR line (optional)

Format matches the standard.

Importing boundary points: Not currently imported.

Export anticipated from 2018.

### 5.3.11 \*SH line (optional)

Format matches the standard.

### 5.3.12 \*CI and \*CO line (optional)

Format matches the standard.

### 5.3.13 Through coach (\*KW, \*KWZ and \*B lines:)

Format matches the standard. \*A and \*A VE are supported for \*KW and \*KWZ. The format in this case is based on section 5.3.5 and 5.3.6.



B lines are not supported.

#### 5.3.14 Route lines

Format matches the standard.

#### 5.3.15 Route data with regions (optional)

Not supported.

#### 5.3.16 \*TT lines (optional)

Not supported.

#### 5.3.17 \*E lines (optional)

Not supported.

### 5.4 Transport day restrictions

#### 5.4.1 Key data for timetable period ECKDATEN

Lines 1 and 2 are required for the import in order to determine the timetable period. The remaining information is not interpreted. The same applies to the recipient, which can determine the timetable period using this information.

**Table 8: ECKDATEN**

Line	Column	Type	Meaning	Note
1	1-10	CHAR	Timetable start in format DD.MM.YYYY	Corresponds to the first day of the relevant timetable period
2	1-10	CHAR	Timetable end in format DD.MM.YYYY	Corresponds to the last day of the relevant timetable period
3	1ff	CHAR	Timetable designation	Individual fields are separated with \$
			Designation	Example: 2011 timetable
			Export date and time in format DD.MM.YYYY HH:mm:ss	Example: 23.04.2011 12:09:34
			HRDF version	5.20.39
			Supplier	INFO+

Example for file ECKDATEN:

```
12.12.2010
10.12.2011
Fahrplan 2011$15.09.2010 13:34:12$5.20.39$INFO+
```

#### 5.4.2 Transport days for journeys BITFELD

Format matches the standard.

Number range of bit field number: INFO+ only uses bit field numbers 1 to 799,999 in the export. The remaining numbers can be used freely. The complete number range can be used for the INFO+ import.

### 5.5 Transport category ZUGART

Format matches the standard.

ZUGART is not imported into INFO+. Delivered data is mapped to INFO+ master data.

*Note:*

Only values defined as per the offer categories specified in document "Harmonisation of transport categories" are permitted to be used (applies to entire section 5.5).

The file contains multiple line types. The first part defines the actual ZUGART (train type). Specifics for the export from INFO+ are provided here.

## Train type

**Table 9: ZUGART**

Column	Type	Meaning	Note
1-3	CHAR	Short designation of category code in the data	
5-6	INT16	Product class (0–13). Required in order to restrict a search to specific categories (e.g. no ICE).	
8-8	CHAR	Tariff group A–H	Currently always: A
10-10	INT16	Output control	Currently always: 0
12-19	CHAR	Category designation that is output.	
21-21	INT16	Surcharge	Currently always: 0
23-23	CHAR	Flag N: Local transport category B: Journey is boat	
25-28	[\$]INT32	Category image names	Not used.
30-33	[#]INT32	Number for language-dependent category long names.	Reference to designation in second part of file: Category.

### 5.5.1 Other information in the ZUGART file

The second part of the ZUGART file contains classes (for grouping types), options (search) and categories (names of types). The entire thing is output in different languages.

#### PRODUKTKLASSE

Format matches the standard.

#### OPTION

Format matches the standard.

**Table 10: Specifics of Option**

Column	Type	Meaning	Note
1-8		Option definition (10–14)	Number range differs from HRDF 5.20.39
10ff	CHAR	Option text	

## Category

Format matches the standard.

Example:

```

CNL  0 A 0 CNL      0      #001
EC   1 A 0 EC       0      #002
EN   0 A 0 EN       0      #003
IC   1 A 0 IC       0      #004
ICE  0 A 0 ICE      0      #005
ICN  1 A 0 ICN      0      #006
IR   2 A 0 IR       0      #007
M    9 A 0 M        0      #008
NZ   0 A 0 NZ       0      #009
RJ   0 A 0 RJ       0      #010
S    5 A 0 S        0      #011
SN8  5 A 0 SN8     0 N    #012
SZ   5 A 0 SZ       0      #013

```



UUU 0 A 0 - 0 #014

```
<text>
<Deutsch>
class00 ICE/EN/CNL/CIS/ES/MET/NZ/PEN/TGV/THA/X2
class01 EuroCity/InterCity/ICN/InterCityNight/SuperCity
class02 InterRegio
class03 Schnellzug/RegioExpress
class04 Schiff/Fähre/Dampfschiff
class05 S-Bahn/StadtExpress/Eilzug/Regionalzug
class06 Bus/Kutsche/Taxi
class07 Luftseilbahn/Standseilbahn/Gondelbahn/Sesselbahn
class08 Metro/Autoreisezug/Extrazug/UrlaubsExpress
class09 Tram
option10 nur Direktverbindungen
option11 Direkt mit Schlafwagen*
option12 Direkt mit Liegewagen*
option13 Veloselbstverlad zugelassen (nur Schweiz)
option14 Gruppenbeförderung zugelassen (nur Schweiz)
category001 CityNightLine
category002 EuroCity
category003 EuroNight
category004 InterCity
category005 InterCityExpress
category006 IC-Neigezug
category007 InterRegio
category008 Metro
category009 Nacht-Zug
category010 Railjet
category011 S-Bahn
category012 Nacht-S-Bahn 8
category013 Stadtbahn Zürich
category014 Unbekannte Art
<Englisch>
class00 ICE/EN/CNL/CIS/ES/MET/NZ/PEN/TGV/THA/X2
...
option10 direct connections only
...
category001 CityNightLine
...
<Franzoesisch>
class00 ICE/EN/CNL/CIS/ES/MET/NZ/PEN/TGV/THA/X2
...
option10 Correspondances directes
...
category001 CityNightLine
...
<Italienisch>
class00 ICE/EN/CNL/CIS/ES/MET/NZ/PEN/TGV/THA/X2
...
option10 Collegamenti diretti
...
category001 CityNightLine
...
```

## 5.6 Connections between stops **METABHF**

Source system: The source system for footpaths is INFO+. The meta-train station information is not imported into INFO+.

Level of detail: Footpaths are defined at the stop level.

### 5.6.1 Transition relationships

Format matches the standard.

### 5.6.2 \*A lines (optional)

Format matches the standard.

**5.6.3 \*V line (optional)**

Not supported.

**5.6.4 \*O line (optional)**

Not supported.

**5.6.5 \*U line (optional)**

Not supported.

**5.6.6 \*C line (optional)**

Not supported.

**5.6.7 \*I lines (optional)**

Not supported.

**5.6.8 \*B lines (optional)**

Not supported.

**5.6.9 \*G lines (optional)**

Not supported.

**5.6.10 \*L lines (optional)**

Not supported.

**5.6.11 \*E lines (optional)**

Not supported.

**5.6.12 Stop groups**

Format matches the standard.

**Table 11: Specifics of stop groups**

Column	Type	Meaning	Note
1-7	INT32	The number for the collective term.	
8-8	CHAR	Fixed character “.”.	
10-10	CHAR	The type of the 1st equivalence: S, B, F, V, H or blank space.	Currently a blank space is delivered
11-17	INT32	The number of the 1st equivalence.	
19-19	CHAR	The type of the 2nd equivalence: S, B, F, V, H or blank space.	Currently a blank space is delivered
20-26	INT32	The number of the 2nd equivalence.	
28ff		<i>Type</i> and number of the next equivalence ... etc.	

Example:

```
0012105: 0012105 0100020
```

Source system: The source system for equivalences is INFO+

Types of equivalence: Direct equivalences and footpath equivalences are supported.

Level of detail: Equivalences are defined at the stop level. Further development for the area and/or increase levels as per DiDok development program.

**5.7 Stop-related transfer times UMSTEIGB**

Format matches the standard.

Import/export: Only exported and not imported.

## 6 Optional data files

### 6.1 Stop description BHFART

Format matches the standard.

### 6.2 Train station attributes and train station meta-attributes BHFATTR

Not supported.

### 6.3 Additional attributes and meta-attributes ATTRIBUT

#### 6.3.1 Additional attributes

##### Line format type 1

Format matches the standard.

**Table 12: Specifics of line format type 1**

Column	Type	Meaning	Note
1-2	CHAR	Attribute code	
4-4	INT16	Stop affiliation (1 for departure stop, 2 for arrival stop, 0 for journey section)	In addition to the standard, the value 3 is allocated for the departure and arrival stop.
6-8	INT16	Attribute output priority; small values take precedence over large values. Where there are multiple attributes, attributes with precedence are output first. Priorities <= 2 are emphasised separately if necessary.  Value range 0–999	Right-aligned
10-11	INT16	Attribute output refined sorting; small values take precedence. Where there are attributes of equal output priority, the output is based on the result of refined sorting.  Value range 0–99	Right-aligned
13ff	CHAR	Attribute plain text (max. 70 characters long), ended by #.	

**Table 13: Specifics of line format type 2**

Column	Type	Meaning	Note
1-1	CHAR	#	
3-4	CHAR	Timetable data attributes	
6-7	CHAR	"--", if this attribute is to be suppressed; otherwise the attribute code to output the partial route.	
9-10	CHAR	"--", if this attribute is to be suppressed; otherwise the attribute code to output the full route. If the attribute code comprises only one digit, the field does not have to be filled with blank spaces.	

Example:

```
B1 1 100 10 Halt nur bei Bedarf#
```

```
K1 0 200 10 Nur 1. Klasse#  
LW 0 300 10 Liegewagen#  
TL 0 300 11 Teilstrecke Liegewagen#  
# B1 -- B1  
# LW LW LW
```

Language: In contrast to standard 5.20.39, attributes for different languages are delivered in different languages. For identification purposes the file name has the language code added to it: Attribute\_DE, Attribute\_FR, Attribute\_EN, etc.

Supported attributes: The data is mapped to existing attributes in INFO+ during the import. They are standardised.

### 6.3.2 Meta-attributes

Not supported.

### 6.4 Train station transfer priorities BFPRIOS

Format matches the standard.

Import/export: The data is not imported.

Source system: Train station transfer priorities come from INFO+

### 6.5 Train information text INFOTEXT

Format matches the standard.

Languages: In contrast to standard 5.20.39, informational text is exported for different languages. For identification purposes the file name has the language code added to it: INFOTEXT\_DE, INFOTEXT\_FR, INFOTEXT\_EN, etc., whereby not all informational text is translated into all languages. In order to ensure the completeness of the individual files, the informational text is also output in its original language in the files for the other languages accordingly. Example: Informational text in German: "Hallo" or "Hello" in English; does not have a French or Italian translation. For this reason, the informational text in the original language (German) is also used in the French and Italian files.

Data is only imported into INFO+ in one language, i.e. only the main language is imported.

#### 6.5.1 Advanced train information text

Not supported.

### 6.6 List of transfer points KMINFO

Format matches the standard.

Source system: The `kminfo` values come from INFO+.

### 6.7 More precise transfer times

#### 6.7.1 Order of consideration of transfer times in HAFAS

#### 6.7.2 Transfer times between administrations UMSTEIGV

Format matches the standard.

Source system: The `umsteigv` values come from DiDok

#### 6.7.3 Line and direction-related transfer times UMSTEIGL

Format matches the standard.

#### 6.7.4 Guaranteed transitions for lines UMSTFWL

Not supported.

### 6.7.5 Journey pair-related transfer times UMSTEIGZ

The UMSTEIGZ file is delivered in duplicate. One copy is in the original format 5.20.30 without transport days and one contains additionally specified transport days based on HRDF 5.40.

The variant without transport days is delivered to INFO+.

#### UMSTEIGZ HRDF 5.20.39

Format matches the standard.

#### UMSTEIGZ with transport days

Format does not match the standard. This is a feature from HRDF 5.40, except that it has five-digit journey numbers.

*Note:*

Users of transform programs 5.20 cannot use this file.

**Table 14: UMSTEIGZ**

Column	Type	Meaning	Note
1-7	INT32	Stop number.	
9-13	INT32	Journey number 1.	
16-21	CHAR	Administration for journey 1.	
23-27	INT32	Journey number 2.	
30-35	CHAR	Administration for journey 2.	
37-39	INT16	Transfer time in minutes.	
40-40	CHAR	(optional) Exclamation mark "!" to mark a guaranteed transfer.	
42-47	INT32	Transport day bit field number (optional)	
49ff	CHAR	(optional) Stop name.	For easier reading only.

**Example**

8002010 03079 80\_\_\_\_ 03189 80\_\_\_\_ 002! 0000001 Flieden

Source system: UMSTEIGZ and "UMSTEIGZ with transport days" come from INFO+.

### 6.7.6 Guaranteed transitions for journeys UMSTFWZ

Not supported.

### 6.8 Merging VEREINIG

Not supported.

### 6.9 Through services DURCHBI

Format matches the standard.

Max. cascading: No more than five through services are allowed to be engaged one after the other (cascaded). The plan data creation for HAFAS rejects the excess through services in long cascades.

Restrictive use: Through services should only be used where this results in relevant information for the passenger.

## 6.10 File with direction information RICHTUNG

Format matches the standard.

The entries with prefix R are reserved for INFO+.

## 6.11 Boundary point information GRENZHLT

Format matches the standard.

Import/export: Only exported.

Source system: The values for boundary points come from INFO+.

## 6.12 Postponements ZEITVS

Format does not match the standard.

**Table 15: ZEITVS type 1**

Column	Type	Meaning	Note
1-7	INT32	Train station number	
9-13	INT32	Postponement in relation to GMT (→ this is the time zone)  Characteristics: +SSMM or-SSMM)	
15-19	INT32	Postponement in relation to the following timeframe  (→ defines summer/winter times)	
21-28	INT32	From date (DDMMYYYY)	
30-33	INT16	Related time (SSMM)	
35-42	INT32	To date (DDMMYYYY)	
44-47	INT16	Related time (SSMM)	
49ff	CHAR	Comment (with leading %)	

Example:

```
0000000 +0100 +0200 25032012 0200 28102012 0300 % Nahverkehrsdaten; MEZ=GMT+1
1000000 +0200 +0300 25032012 0300 28102012 0400 % Finnland
```

**Table 16: ZEITVS type 2**

Column	Type	Meaning	Note
1-7	INT32	Train station number	
9-15	INT32	Train station number	
16ff	CHAR	Comment (with leading %)	

Example:

```
8100000 0000000
```

Import/export: The ZEITVS file is only imported from EFZ and provided to all recipients.

## 6.13 Exchange EXCHANGE

Not supported.



## 6.14 Addresses and building file ADRESSEN

Not supported.

## 6.15 Sorting SORTKEYS

Not supported.

## 6.16 Additional stop information BFINFO

Not supported.

## 6.17 Track/bus bay information GLEISE

Format matches the standard.

**Table 17: Specifics of GLEISE**

Column	Type	Meaning	Note
1-7	INT32	Stop number.	
9-13	INT32	Journey number.	
15-20	CHAR	Administration for journey.	
22-29	CHAR	Track information (left-aligned!)	Track and sector information must be separated as follows:  During import: <HALTEKANTE><LEERZEICHEN><SEKTOREN>  During export: <HALTEKANTE><SEKTOREN>
31-34	INT16	(optional) Time in format HHMM (<2400)	
36-41	INT32	(optional) Transport day key.	

Example:

Import:

```
8010338 00319 DB0074 6           100201
8010338 00319 DB0074 5 A       0650 100202
8010338 03232 DB0011 3
```

Export:

```
8010338 00319 DB0074 6           100201
8010338 00319 DB0074 5A       0650 100202
8010338 03232 DB0011 3
```

Transport days: It must be ensured that the bit fields for the track data match the bit fields for the corresponding journey (tracks should only be defined on the days on which the journey also takes place)

## 6.18 Operator information BETRIEB

Format matches the standard.

Import/export: The information is not imported through INFO+, rather the administrations are mapped to the transport companies recognised in INFO+.

Language: In contrast to standard 5.20.39, the operation is delivered for different languages. For identification purposes the file name has the language code added to it: INFOTEXT\_DE, INFOTEXT\_FR, INFOTEXT\_EN, etc.

## 6.19 Special trains SONDERZG

Not supported.

## 6.20 Address detail address.txt

Not supported.

## 6.21 Coordinates for house numbers, street sections and crossings HAUSNR

Not supported.

## 6.22 Blocked edges SPERRKANTEN

Not supported.

## 6.23 Route points STRECKENPT

Not supported.

### 6.23.1 \*I lines (optional)

Not supported.

### 6.23.2 \*M line (optional)

Not supported.

## 6.24 Real graph edges KANTEN

Not supported.

### 6.24.1 \*G lines (optional)

Not supported.

### 6.24.2 \*L line (optional)

Not supported.

### 6.24.3 \*T lines (optional)

Not supported.

### 6.24.4 \*I lines (optional)

Not supported.

### 6.24.5 \*M line (optional)

Not supported.

## 6.25 Journey route network assignment FAHRTZUORDNG

Not supported.

### 6.25.1 \*P lines

Not supported.

## 6.26 Regions REGION

Not supported.

### 6.26.1 \*P line

Not supported.

### 6.26.2 Polygonal corner points

Not supported.



## 7 Additional files

### 7.1 Holidays

Does not match the standard.

**Table 18: Holidays**

Column	Field	Description
1-10	Holiday	FEIERTAG.DATUM Date of holiday in format DD.MM.YYYY

Example:

25.12.2015

26.12.2015

Content: Describes the general holidays for the timetable period. For the NAV it is a good idea to work only with transport days (bit field) as the holidays are subject to big regional differences and a general description is not very practical.

## 8 Glossary

Term	Meaning
Equivalences	This is used to map the definition of “when stop X is entered as start/destination, then search also from/to Y” For HAFAS, these types of definitions are mapped in the form of stop groups in the HAFAS raw data file <code>metabh.f</code> . Equivalences generally serve to aid the user, so that the user does not have to know precisely which stop should be searched from. Typical application is the connection of a train station and the bus stop directly adjacent to it.
Reserve transport	Refers to a method of operating transport whereby the transport option is only run or commissioned when needed. Reserve transport can also be mixed with scheduled timetable transport. Typical examples of reserve transport or mixed transport are short funiculars (e.g. Rigiblickbahn in Zurich, Mühleggbahn in St. Gallen).
CUS	Implementation of the →National Real-Time Data Platform. Client: FOT, system management: SBB
HaCon	Code for Hannover Consulting mbH: Leading software specialist for planning, dispatch and information systems for public transport. The most well-known product is →HAFAS. HaCon has been a member of the Siemens family since 2017.
HAFAS	HaCon timetable information
HRDF	Short designation for HAFAS raw data format. Version 5.20.30 is meant unless otherwise stated. See [1]. Identified with an added version number (e.g. HDRF 5.40). For HRDF 5.40 see [2]
INFO+	Implementation of the National Timetable Collection. Client: FOT, system management: SBB
KIDS	KIDS working group (KIDS = “Kunden-Informationen-Daten-Schnittstelle” or customer information data interface for Swiss public transport system). KIDS aims to standardise customer information. [...] Basing the information on VDV standards with minimal Swiss-specific changes reduces procurement costs. What Swiss-specific details are necessary are actively introduced to the VDV standard. With a uniform Swiss-wide standard, the prospects of adoption in the VDV standard increase (quote from ch-direkt website).
KIT	Committee for IT systems of ch-direkt: KIT works on further developing the central IT systems in the sale and distribution of public transport. It defines data exchange standards and ensures the optimal function of the interfaces, so that DV travel passes can be managed centrally but can be sold in a decentralised fashion. It also maintains jointly operated IT solutions. (quote from ch-direkt website)
LV03	LV stands for “land surveying”, 03 for the year in which land surveying was started or completed. The reference framework LV03 is based on measurements taken more than 100 years ago. Due to the surveying methods used at the time, LV03 differs drastically from WGS84 coordinates, which is why →LV95 was introduced. The coordinates have the familiar values as they have appeared on Swiss maps for decades (e.g. Bern with values 600 000/ 200 000). Land topography was used.
LV95	LV stands for “land surveying”, 95 for the year in which land surveying was started or completed. LV95 corrects the drastic differences to WGS84 coordinates and is therefore an equal counterpart to the WGS84 system. In order to differentiate between LV95 and LV03, 1 or 2 million have been added to the coordinates and the cardinal directions (E and N) have been added. LV95 coordinates for Bern are E=2,600,000 m (East) and N=1,200,000 m



Term	Meaning
	(North).
National Real-Time Data Platform	Integrates the real-time sources from different transport companies in Switzerland into one national real-time data platform. Current implementation of the National Real-Time Data Platform is →CUS
National Timetable Collection	Digital collection of timetables of all licensed transport companies in Switzerland. Current implementation of the National Timetable Collection is →INFO+.
VDV	The German Association of Transport Companies (VDV) comprises around 600 public passenger and freight transport companies in Germany. The association's stated aims are to advise its members and contribute to policy, cultivate the exchange of experiences and knowledge among its members and devise technical, operational, legal and commercial guidelines.
VDV453, actual data interface (VDV Guideline 453)	Defines the technical services and subscription procedure as communication infrastructure in the form of a standard interface. The following services are currently available: "Ensuring connections 'ANS'", "Dynamic passenger information 'DFI'", "Visualisation 'VIS'" and "General message service 'AND'".
VDV454, actual data interface (VDV Guideline 454)	The following services are defined based on the communication infrastructure set out in VDV Guideline 453 as additional services for more dynamic timetable information: Target data service "REF-AUS" with the day's current target timetables for medium-term information (reference) and the actual data service "AUS" with actual data from operational occurrences for short-term information.
WGS 84	The World Geodetic System 1984 (WGS84) is a geodetic reference system used as the uniform basis for position referencing on Earth and in Earth's nearby space.