HRDF realisation guide – Swiss public transport system
Based on HAFAS raw data format 5.40.72

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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.

Contents

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Referenced documents

[1] HaCon Ingenieurgesellschaft mbH, *HAFAS Rohdatenformat, Version 5.40.72,* HaCon, Hrsg., Lister Str. 15, 30163 Hannover.

[2] HaCon Ingenieurgesellschaft mbH, *HAFAS Rohdatenformat, Version 5.20.39,* HaCon, Hrsg., Lister Str. 15, 30163 Hannover.

[3] Systemaufgaben Kundeninformation, "Standards," [Online]. Available: https://www.xn--v-info-vxa.ch/de/datenstandards. [Accessed February 2020].

Change history from V 2.0.1 to 2.0.2

Section	Change	Editor	Date
7.5.1	Linientyp R → Linientyp R T	rdl	23.02.21
7.5.1	Linientyp D → Linientyp D T	rdl	23.02.21

Change history from V 2.0.2 to 2.0.3

Section	Change	Editor	Date
6.3	Definition of two implementations of `BHFART`	rdl	10.06.21
7.9	Definition of three implementations of `GLEIS`	rdl	10.06.21

Change history from V 2.0.3 to 2.0.4

Section	Change	Editor	Date
1.4	Changes to Swiss Journey ID (SJYID) summary	Laurent Prod'hom	06.12.2021
5.6.1.1	Type of transmission added for Swiss Journey ID (SJYID)	Laurent Prod'hom	06.12.2021
7.1.3	Comment added on Swiss Journey ID (SJYID)	Laurent Prod'hom	06.12.2021

Change history from V 2.0.4 to 2.0.5

Section	Change	Editor	Date
3	Updating the picture of the different responsibilities	LP	26.05.2023
6.2	Adjustments to the columns for the coordinates of the stopplaces	LP	26.05.2023
7.9	Definition of two new expressions of GLEISE	LP	26.05.2023

Change history from V 2.0.5 to 2.0.6

Section	Change	Editor	Date
Chapter 1.4	Summary of what's new in version 2.0.6	LP	11.08.2023
Chapter 5.5	Transmission of the attribute files according to RV 1.x is stopped. Adaptation of the column definition	LP	11.08.2023
Chapter 5.6.1.2	New chapter: Definition of the structure of the information text for the transmission of transport category	LP	11.08.2023
Chapter 6.1	Editorial correction of column definition	LP	11.08.2023
Chapter 6.3 und 6.3.2	Transmission of the BHFART_60 file is stopped. The information "Country" and "Canton" are made available.	LP	11.08.2023
Chapter 6.7	Adaptation to standard HRDF 5.40.72	LP	11.08.2023
Chapter 6.8	Editorial correction. The file is no longer available	LP	11.08.2023

Chapter 7.2	The allocation of the transport category to its transport mode is determined.	LP	11.08.2023
Chapter 7.8	Editorial adjustment. Multilingualism of the direction information is not supported	LP	11.08.2023
Chapter 7.9	Transmission of the files GLEIS, GLEIS_LV95, and GLEIS_WGS is stopped	LP	11.08.2023

Change history from V 2.0.6 to 2.0.7

Section	Change	Editor	Date
Chapter 1.4	Summary of what's new in version 2.0.7	LP	17.05.2024
Chapter 4.3	Adaptation of the table with the mapping of stop codes. The case with the seasonal stop has been deleted	LP	17.05.2024
Chapter 5.6.1.2	Editorial adjustment.	LP	17.05.2024
Chapter 6.2.2	Editorial adjustment.	LP	17.05.2024
Chapter 6.2.3	Editorial adjustment.	LP	17.05.2024
Chapter 7.1.3	The line format *SH is no longer supported The line format *GR is no longer supported The line format *VV is now supported	LP	17.05.2024
Chapter 7.2	Editorial adjustment.	LP	17.05.2024
Chapter 7.6	Adaptation in file BETRIEB	LP	17.05.2024

Approval status:

Version	Date	Status
2.0	24.10.2019	Approved and declared binding by SKI Mgmt Board
2.0.1	06.02.2020	Translation from German
2.0.2	23.02.2021	Error correction in chapter 7.5.1
2.0.3	10.06.2021	Early introduction stop points and of the `SLOID`. For this purpose the file `BFHART` will henceforth be defined in two implementation types and the "track" file in three. The text passages that have changed compared to version 2.0.2 are highlighted in yellow.
2.0.4	06.12.2021	Type of transmission added for Swiss Journey ID (SJYID)
2.0.5	26.05.2023	Adjustment according to proposal 1 of the KIDS working group target data of 04.04.2023
2.0.6	07.09.2023	Adjustment according to points 3 and 4 of the KIDS working group target data of 29.06.2023 Synchronisation with HRDF 5.40.72 Simplification of the output of SKI
2.0.7	17.05.2024	Adjustments • in accordance with point 2 of the KIDS working group "Solldaten" of 16.11.2023 • in accordance with points 2 and 3 of the KIDS working group "Solldaten" of 28.03. 2024

1 Introduction

1.1 Initial situation

The KIDS target data working group has defined the extensions to the existing RV that are to be implemented with the aid of the "HAFAS raw data format" version 5.40.72 [1].

1.2 Basic format and deviations

The basis is document "HAFAS raw data format" version 5.40.72 [1]. HAFAS raw data format is hereinafter referred to by the acronym HRDF.

HDRF 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) <u>Additions outside of existing raw data files</u>: 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) <u>Additions and changes to existing raw data files</u>: There are two sub-variants here:

b1. <u>Additions and changes can be inserted compatibly</u> (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. <u>Additions and changes cannot be inserted compatibly</u>: 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 Major deviations from the implementation specifications V 1.0

Significant additions:

- Account taken of new files `Linie`
- LV95 coordinates exchanged
- Stop `SLOID` exchanged
- Length of the attributes `Zugnummer` and `Hinweisnummer` extended
- Various adjustments to ensure conformity with the new format:
  - Track, attribute, etc.

1.4 New in Version 2.0.7

The following changes are implemented:

- File BETRIEB: Use of the identifier N for the exchange of the SBOID. See also [Technische Standards | öv-info.ch (xn--v-info-vxa.ch)](#)
- File FPLAN :
  - The line formats *SH and *GR are no longer supported
  - The line format *VV is now supported

2 Structure of the document

2.1 Document hierarchy and stakeholders

Based on the official HRDF 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 (HDRF STANDARD [1]), with the aim of achieving uniform application across the entire Swiss pubic transport system.

HRDF 5.40.72

Specifics

Additions to the standards

KIDS working group

Realisation guide HRDF-RG as a shared basis in the Swiss public transport system
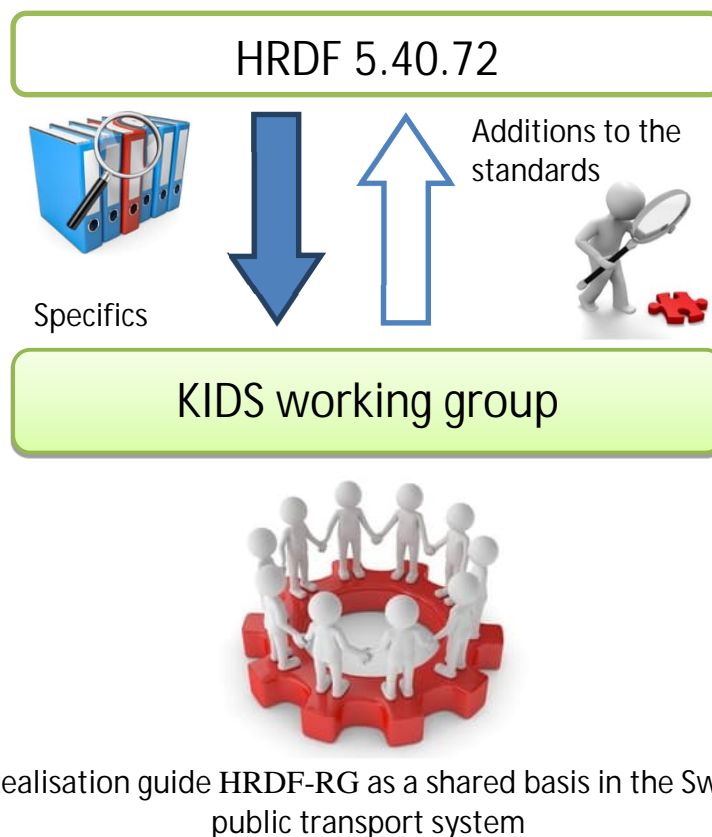
Figure 1: Interrelations between KIDS and HRDF

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.

Implementation specifications are officially released by the MB (Management Board) SKI (system task customer information).

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 NORM (HAFAS raw data version 5.40.72 [1] or version 5.20.39 [2])

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.
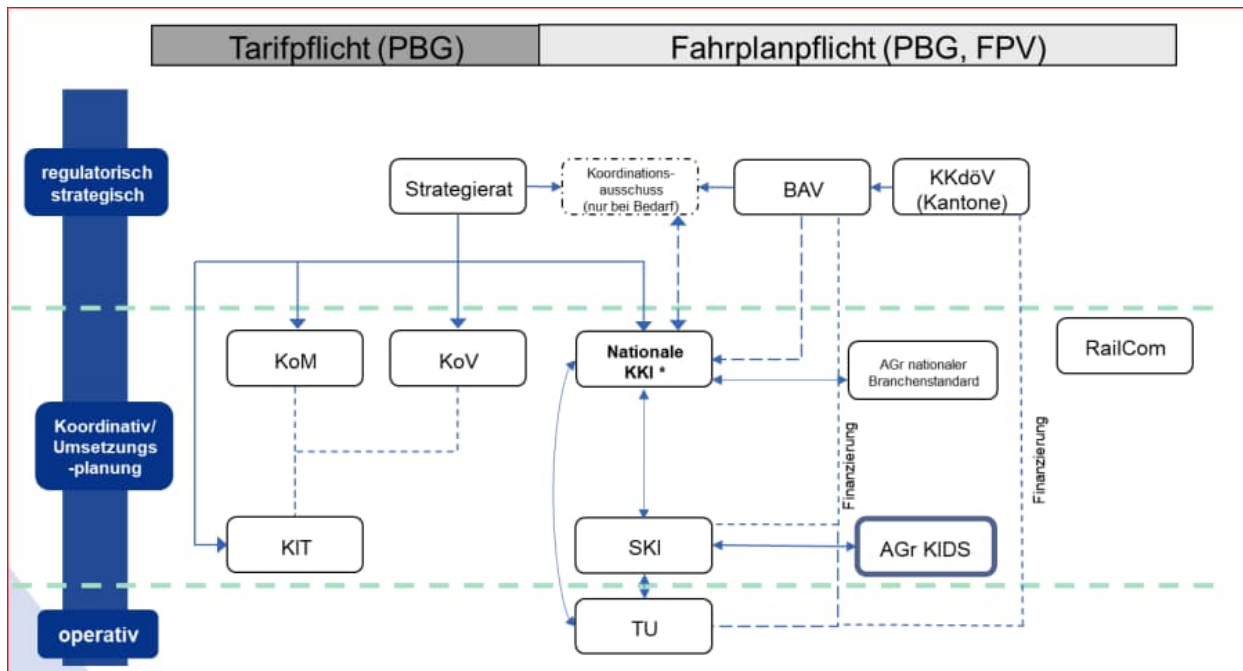
Figure 2: Overview of responsibilities

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.
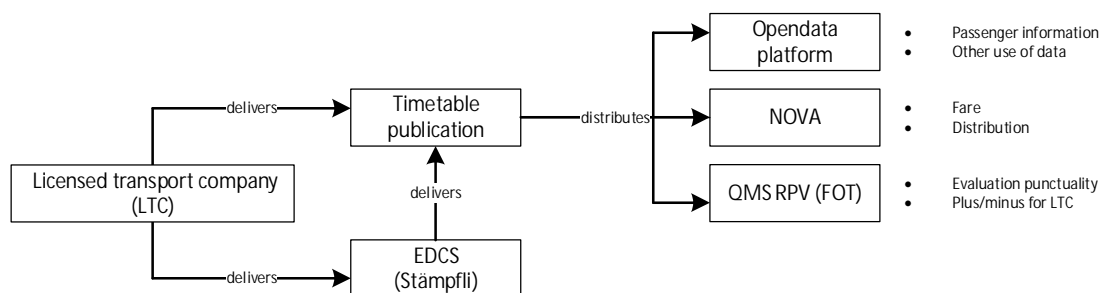
Figure 3: Overview of data flow

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 Stop

Defining 9-digit stop numbers (in accordance with option HRDF 5.40) is not supported.

4.3 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`
	`8500023 Liestal            01526 01527`
	`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`
	`8500023 Liestal            01526 `**`-01527`**
	`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`
	`8500023 Liestal           `**`-01526`****` 01527`**
	`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`
	`8500023 Liestal           `**`-01526 -01526`**
	`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`
	`8500023 Liestal           `**`-01526 -01527`**
	`8500026 Sissach            01532`

Request stop	`*Z 02471 85____     01`
	`*G IR  8500010 8500026`
	`*A VE 8500010 8500026 000000`
	`*A X  8500023 8500023`
	`8500010 Basel SBB                    01515`
	`8500023 Liestal            01526 01527`
	`8500026 Sissach            01532`

4.4 Optional fields

If an optional field is <u>not</u> 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).

4.5 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 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 2: `ECKDATEN`

Line	Column	Type	Meaning	Note
1	1-10	CHAR	Timetable start in format DD.MM.YYYY	
2	1-10	CHAR	Timetable end in format DD.MM.YYYY	
3	1ff	CHAR	Timetable designation	
			Timetable period (version)	
			Time and date of file generation. Format DD.MM.YYYY HH:mm:ss	
			HRDF format	
			Supplier	

Example:

```
09.12.2018

14.12.2019

Fahrplan $2019$01.03.2019 09:37:54$5.40.72$INFO+<
```

Note:

- The start and end dates of the timetable period correspond to the official dates of the timetable period.

5.2 Journey operating days `BITFELD`

Not supported.

Table 3: `BITFELD`

Column	Type	Meaning	Note
1-6	INT32	Bit field number	Not consecutively numbered.
8-103	CHAR	Bit field, consisting of 96 (ASCII-readable) hexadecimal digits	The bit fields correspond to the timetable period stored in the `ECKDATEN` file.

Example:

```
000001 DF3E3C79F3E7CF9F3E7CF9F3E7CF9E1E7CF973E74F8F3E7CF9F3E7CF9F367CF9F3E7CF9F3E7CF9F3E7CF9F3E7CFB0000

000002 DF3E3C79F3E7CF9F3E7CF9F3E7CF9E1E7CF9F3E74F8F3E7CF9F3E7CF9F367CF9F3E7CF8F3E7CF9F3E7CF9F3E7CFB0000
```

Note:

- By way of derogation from the document [1] the specifications in `BITFIELD` apply for a single timetable period.
- As regards the structure of the bit field, compliance with the documentation in document [1] is essential!

- 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.

5.3 Sorts SORTKEYS

Format does not match the standard [1].

5.4 Sorts SORTMAPS

Not supported.

5.5 Attributes and meta-attributes ATTRIBUT

5.5.1 Simple journey and walk attributes

Line format attribute definition:
Format matches the standard [1].

Line format attribute output:
Format matches the standard [1].

5.5.2 Meta-attributes
Not supported.

5.5.3 Meta-attributes with a special meaning
Not supported.

5.5.4 Language-dependent definition of attribute texts
Format matches the standard [1].

Example:
```
BE 0    0   0

BH 3    2   2

# BE BE BE

# BH BH BH

<text>

<deu>

BE  Bahnersatz

BR  BUS: Weitere Busse auf Anfrage

<fra>

BE  Service de substitution

BR  BUS: Autres bus sur demande

<ita>

BE  Servizio sostitutivo

BH  Fermata solo con prenotazione telefonica

<eng>

BE  Rail replacement service

BH  Stopps only on previous demand (telephone)
```

5.5.5 Combination of attributes and information texts
Not supported.

5.5.6 Remark

The files ATTRIBUT_DE, ATTRIBUT_EN, ATTRIBUT_FR, ATTRIBUT_IT are no longer provided by SKI according to RV 1.x.

5.6 Train information texts `INFOTEXT`

5.6.1 Simple information texts

Format matches the standard [1].

<u>Languages</u>: By way of derogation from document [1], information texts are exported for different languages. For identification purposes the file name has the language code added to it: `INFOTEXT_DE`, `INFOTEXT_FR`, `INFOTEXT_EN`, etc.; however, not all information texts are translated into all languages. In order to ensure the completeness of the individual files, the information text is also output in its original language in the files for the other languages accordingly. Example: Information text in German: `Hallo` in German or `Hello` in English; does not have a French or Italian translation. For this reason, the information text in the original language (German) is also used in the French and Italian files.

Example:
```
000000001 GlacierExpress

000000002 2105
```

5.6.1.1 Swiss journey ID as information text

The Swiss Journey ID (SJYID) is part of the SID4PT and is exchanged as an information text.

Example:

46029809 ch:1:sjyid:<AdminOrg>:<InternalID>

Please note: the exact definition of the Swiss Journey ID is available on the SKI website:

Transport Data Management

5.6.1.2 Structure of the note of the info text code VM

The InfotextCode VM communicates the assignment of a transport category to a means of transport mode. The information text contains the following information:

Column	Type	Meaning	Note
1-9	Infotextnumber		
11ff	Informationstext	11-13	Code of the transport category
		15	Abbreviation of the transport mode
		17-ff	description of the transport mode

Beispiel:
```
000164784 IC  Z Zug

000164785 B   B Bus
```

5.6.2 Advanced train information text

Not supported.

5.7 Regions `REGION`

Not supported.

6 Stop data

6.1 List of stations/stops `BAHNHOF`

Format matches the standard [1].

Table 4: Clarification `BAHNHOF`

Column	Type	Meaning	Note
1-7	INT32	The number of the stop	DiDok no.
9-11	CHAR	Blank	
13-ff	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 Language-dependent names are not supported.

Example:

```
8507000    Bern$<1>$BN$<3>

8507002    Ostermundigen$<1>

8501026    Genève-Aéroport$<1>$GEAP$<3>$Geneva Airport$<4>$Genf Flughafen$<4>$Ginevra Aeroporto$<4>
```

Comments:

- DiDok 3 is the master system for stop names and numbers.
- DiDok numbers (meaning the seven-digit numbers beginning with country code 85): Stops at which passengers can board or disembark must have a valid DiDok no. Tourist "via" information (fictional via's), meta-BP and border points are excluded from this rule, but application of this rule is recommended even for these objects.
- Stop aliases: Do not come from DiDok, but are entered in INFO+.

6.2 Stop coordinates `BFKOORD`

6.2.1 General

Two `BFKOORD` files are written during INFO+ export: one in LV95 format and one in WGS84 format. For differentiation purposes, file names are formed as follows:

- `BFKOORD_LV95`: Coordinates in Swissgrid format LV95.
- `BFKOORD_WGS`: Coordinates in WGS84 format. Valid worldwide. See section 6.2.3 for information on format

Comments:

- Import coordinates: No coordinates are imported. DiDok is the master.
- Validity of LV95 coordinates: Only valid for stops and stations in Switzerland and in areas close to the Swiss border.
- WGS84 coordinates: If regions outside Switzerland or outside areas close to the Swiss border are to be included, the WGS84 coordinate data must be used.
- Coordinates in Swissgrid format LV03 are no longer provided.
- LV95 is a Cartesian coordinate system, while WGS84 is a geographic coordinate system.

6.2.2 `BFKOORD_LV95`

Format matches the standard [1].

Table 5: The following clarifications apply to `BFKOORD_LV95`

Column	Type	Meaning	Note
1-7	INT32	The number of the stop	
9-19	FLOAT	Y-coordinate*	LV95 Accuracy to the meter NNNNNNNN right-aligned
21-31	FLOAT	X-coordinate*	LV95 Accuracy to the meter NNNNNNNN right-aligned
33-38	INT16	Z-coordinate	Altitude in metres, left-aligned, optional (can be blank).
40ff	*CHAR*	*Comment (with leading %)*	Optional. *For easier reading only*

Example:
```
8570203    2538684    1165776 622    % Echallens, place Emile Gardaz
8570204    2539014    1165808 617    % Echallens, La Robellaz
8570238    2538283    1165706 617    % Echallens, gare
```

6.2.3 `BFKOORD_WGS`

Format matches the standard [1].

Table 6: The following clarifications apply to `BFKOORD_WGS`

Column	Type	Meaning	Note
1-7	INT32	The number of the stop	
9-19	FLOAT	X-coordinate, longitude	WGS84 format, [-]NNN.nnnnnn, right-aligned
21-31	FLOAT	Y-coordinate, latitude	WGS84 format, [-]NN.nnnnnn, right-aligned
33-38	INT16	Z-coordinate	Altitude in metres, left-aligned (can be blank).
40ff	*CHAR*	*Comment (with leading %)*	Optional. *For easier reading only*

Example:
```
8570203    6.637803    46.640402 622    % Echallens, place Emile Gardaz
8570204    6.642109    46.640720 617    % Echallens, La Robellaz
8570238    6.632576    46.639735 617    % Echallens, gare
```

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

6.3 Stop description `BHFART`

Format matches the standard [1].

6.3.1 Examples

Not supported.

6.3.2 Stop properties

Attribute

Not supported.

Selection and routing restrictions

Format matches the standard [1].

Example:
```
8504419 B 3  3  Biel Mett

8000122 B 0  0  Bietingen
```

National or fare zone borders

Not supported.

Display

Not supported.

Stop property

Not supported.

GlobalID

Is supported

Table 7: The following clarifications apply to `GlobalID`

Column	Type	Meaning	Note
1-7	INT32	The number of the stop	
9-9	CHAR	G	
11-11	CHAR	Type designator	
13ff	CHAR	Global ID	

Example:

```
BHFART:

8504419 G A ch:1:sloid:4419

8504419 G a ch:1:sloid:4419:1:1
```

Comment regarding the file `BHFART`:

- The File will not be imported by SKI
- The length of the Global ID field does not match the document definition [1]. The precise structure of Global ID is defined in SKI's documents on the Swiss ID for public transport [3]
- INFO+ obtains all `SLOID` from DiDok3. Therefore, these must already be defined in DiDok3 if you are planning to deliver data to INFO+ with `SLOID`. Otherwise the corresponding `SLOID` will be ignored on import into INFO+.
- The hierarchy inside a StopPlace is represented by using the same letter as uppercase and lowercase.
  - A for the stop (A is capitalized)
  - a for the quay (a is written in lower case)
- The country's information is provided with the abbreviation L
- The information from the Swiss cantons is provided with the abbreviation I and info text code KT.

Other properties

Not supported.

6.4 Station attributes and meta-attributes `BHFATTR`

Not supported.

6.5 Station changing priorities `BFPRIOS`

Format matches the standard [1].

Example:
```
8504419  8 Biel Mett
```

```
8504300  4 Biel/Bienne
```

Comments:
- Source system: Station changing priorities come from INFO+
- Import: File is not imported into INFO+.

6.6   Stop weightings `BHFGEW`

Not supported.

6.7   List of changing points `KMINFO`

Format matches the standard [1].

Example:
```
8000105 30000      % Frankfurt (Main) Hbf

8000150     0      % Hanau Hbf

8000152  1000      % Hannover Hbf
```

Comments:
- Source system: The values come from INFO+.
- Import: File is not imported into INFO+.

6.8   Border point information `GRENZHLT`

Not supported.

6.9   Additional stop information `BFINFO`

Not supported.

6.10   Connections between stops `METABHF`

Format matches the standard [1].

Comments:
- Source system: The source system for walks is INFO+. The meta-station information is not imported into INFO+.
- Granularity: Walks are defined at the stop level.

6.10.1 Transition relationships

Format matches the standard [1].

*A lines (optional)

Format matches the standard [1].

Example:
```
0012105 0100020 005

*A B1
```

*V line (optional)

Not supported.

*O line (optional)

Not supported.

*U line (optional)

Not supported.

*C line (optional)

Not supported.

*I lines (optional)

Not supported.

*B lines (optional)

Not supported.

*G lines (optional)

Not supported.

*L lines (optional)

Not supported.

*E lines (optional)

Not supported.

6.10.2 Stop groups

Format matches the standard [1].

Table 8: Clarification for 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		*Type* and number of the next equivalence … etc.	

Example:
```
8512105:  8512105  8500020
```

Comments:
- Source system: The source system for equivalences is INFO+.
- Equivalence types: Direct equivalences and walk equivalences are supported.
- Granularity: Equivalences are defined at the stop level.

6.11 Exchange EXCHANGE

Not supported.

6.12 Time differences ZEITVS

Format does not match the standard.

Table 9: ZEITVS type 1

Column	Type	Meaning	Note
1-7	INT32	Train station number	

Column	Type	Meaning	Note
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 10: `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
```

Note:

- Import/export: The file `ZEITVS` is imported from the ETC only and is provided to all recipients.

7   Journey-related data

7.1   The timetable `FPLAN`

7.1.1   Journey description

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

7.1.2   Definition of a journey

Line format *Z

Format does not match the standard.

Table 11: The following clarifications and derogations apply in line format *Z

Column	Type	Meaning	Note
1-2	CHAR	*Z	
4-9	INT32	Journey number	In NAV the train number/journey number is a unique number – per delivery – within an administration. Interpretations of the journey

Column	Type	Meaning	Note
			number in NAV that go beyond that are strongly discouraged.
11-16	CHAR	Administration	As per DiDok for Swiss administration. As per master data INFO+ for international administration
17-19	Leer	Blank	
20-22	INT16	Option	Number of transport option. (Not a standard HRDF field). Does not have any technical importance
24-26	INT16	(optional) Number of cycles; indicates the number of cycles still to follow	
28-30	INT16	(optional) Cycle time in minutes (distance between two journeys)	

Example:
```
*Z 000511 000011   101                                    % -- 9482102882 --

*Z 000001 000133   001 030 030                            % -- 4386808318 --

*Z 000007 000133   001                                    % -- 7316802872 --
```

Note:
- Journeys with 6-digit journey numbers are not supplied with the format deliveries [2].

Line format *T

Not supported.

7.1.3 Other line formats

Line format *G

Format matches the standard [1].

In future, the offer category abbreviations from the list managed by SKI will be used as categories.

Example:
```
*G S   8503000 8501026                                    %
```

Line format *A VE

Format matches the standard [1].

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).

Example:
```
*A VE 8010085 8010097                                     %
```

Line format *A

Format matches the standard [1].

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.

Example:
```
*A BB 8010366 8010097 002000                              %
```

Line format *I

23

Format matches the standard [1].

Table 12: The following clarifications apply to line format *I

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 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.
30-38	INT32	Informational text number.	Reference to entry/line in INFOTEXT file.
40-45	[#]INT32	(optional) Departure time.	
47-52	[#]INT32	(optional) Arrival time.	

Example:
```
*I ZN 8010366 8010097          000002905                    %
```

Comments:
- Import in INFO+: Delivered information text is imported in INFO+ if a valid code is used. Impermissible information 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 information text: Notes for which there are no suitable attributes can be defined as purely information text. The code "hi" must be used for this purpose. These notes are imported into INFO+.
- Number range for information text numbers: INFO+ uses the information text number range 1 to 899,999,999. The remaining numbers can be used freely by recipients which mix in additional data.
- Swiss Journey ID as *I line: in accordance with the definition in the SID4PT, some journeys are identified by a Swiss Journey ID (SJYID). In HDRF data, the Swiss Journey ID is exchanged as an information text (*I line) with the code JY.
  Example:
  *I JY 46029809
  See also Section 5.6

Line format *L

Format matches the standard [1].

Example:
```
*L 7       8501169 8501173                              %
*L #1234567 8501169 8501173                             %
```

Line format *R

Format matches the standard [1].

Example:
```
*R                                          %
*R  R000001                                 %
```

Comments:

- Direction standard: 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:
- IDs recognised at the moment: {*R H, *R R}
- Direction numbers: INFO+ has the direction number range with the prefix "R". The remaining numbers can be used freely by recipients.

Line format *VR

Not supported.

Line format *GR

No longer supported as of version 2.0.7.

If such lines are delivered, this information is ignored.

Line format *SH

No longer supported as of version 2.0.7.

If such lines are delivered, this information is ignored.

Line format *NP

Not supported.

Line format *NH

Not supported.

Line format *CI- and *CO

Format matches the standard [1].

Example:
```
*CI 0005 8010366 8010097                          %
```

Comments:
- The *CO lines are used in NAV for line buffer time. Systems that process exports from INFO+ (e.g. timetable information systems) should use them when searching for connections, but not display them in the information. Similarly, when searching for connections on the basis of the current traffic situation, the line buffer time should be excluded from the connection calculation if real-time data is available.

Line format *VV

Format matches the standard [1].

Example:
```
*VV 0005 8507000 8503000                          %
```

Line format *U

Not supported.

Line format *UN

Not supported.

7.1.4 Through carriage (*KW, *KWZ and *B:)

Format matches the standard [1].

Note:
- *A and *A VE are also supported. The format in this case is based on section 7.1.3.

Line format *KW

Format matches the standard [1].

Line format *KWZ

Format matches the standard [1].

Example:
```
*KW 000037
*KWZ 000472 80____ 8500200 Zuerich HB          8000026 Basel Bad Bf        02215  02319
*KWZ 000470 80____ 8000026 Basel Bad Bf        8000152 Hannover Hbf        02340  00612
*KWZ 002746 80____ 8000152 Hannover Hbf        8000050 Bremen Hbf          00644  00754
*A VE 8500200 8000050 001339
*A SL 8500200 8000050
```

Line format *B

Not supported.

7.1.5 Route lines

Line format for route lines

Format matches the standard [1].

Example:
```
0053301 S Wannsee DB                    02014                  %
0053291 Wannseebrücke          02015  02015 052344 80____  %
0053202 Am Kl. Wannsee/Am Gr  02016  02016                  %
```

Line format *E

Not supported.

7.2 Mode or type of transport ZUGART

Format matches the standard [1].

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

Note:

- Only values according to the offer category as defined in the list managed by SKI may be used (also applies to the whole of 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.

Table 13: 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
10-11	INT16	Output control	Currently always: 0
13-20	CHAR	Category designation that is output.	
22-22	INT16	Surcharge	Currently always: 0
24-24	CHAR	Flag N: Local transport category B: Journey is boat	

Column	Type	Meaning	Note
26-29	[$]INT32	Category image names	Not used.
31-34	[#]INT32	Number for language-dependent category long names.	Reference to designation in second part of file: Category.

7.2.1 Further 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 [1].

OPTION

Format matches the standard [1].

Table 14: Clarification for `OPTION`

Column	Type	Meaning	Note
1-8		Option definition (10–14)	Number range differs from HRDF 5.40.72
10ff	CHAR	Option text	

KATEGORIE

Format matches the standard [1].

Example:
```
CNL  0 A 0  CNL     0        #001
*I VM 000000001
EC   1 A 0  EC      0        #002
*I VM 000000002
UUU  0 A 0          -  0     #014
*I VM 000000003


<text>
<Deutsch>
class00 ICE/EN/CNL/CIS/ES/MET/NZ/PEN/TGV/THA/X2
class01 EuroCity/InterCity/ICN/InterCityNight/SuperCity
class02 InterRegio
…
option10 nur Direktverbindungen
option11 Direkt mit Schlafwagen*
…
category001 CityNightLine
category002 EuroCity
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

…
```

Notice:
- The file provided by SKI contains references to entries of the INFOTEXT type

7.3 Associations `VEREINIG`

Not supported.

7.4 Through services `DURCHBI`

Format matches the standard [1].

Example:
```
008844 DB0003 8500010 031920 DB0002 000001          % Basel SBB
020180 889___ 8593382 010702 889___ 000000 8593382  % %Biel/Bienne, Vorhölzli/Bois-Dv
```

Comments:
- Max. cascading: No more than five through services can 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.

7.5 File with line definitions `LINIE`

7.5.1 Line property

The following properties are supported:
- Line type K : Line code
- Line type W : Internal line designation
- Line type N T : Short line name
- Line type L T : Long line name

- Line type R T : Region name of line (reserved for FOT ID)
- Line type D T : Description of line
- Line type F : Line colour
- Line type B : Line background colour
- Line type H : Main line
- Line type I : Line info texts

Example:

```
0000001 K ch:1:SLNID:33:1

0000001 W interne Bezeichnung

0000001 N T Kurzname

0000001 L T Langname

0000001 D T Description

0000001 F 001 002 003

0000001 B 001 002 003

0000001 H 0000002

0000001 I ZN 000000001
```

Comments:

- It is mandatory to supply the following line information types: K, N T
- Line type K is used to exchange the Swiss Line ID (SLNID→ TBD).
- Line type R is reserved for the FOT line definition.
- Only one hierarchical level (line type H) is supported.
- The exact composition of the SLNID is published at [3].
- The use of the fields Line ID (#), Colour (F), Background colour (B), Main line (H), Icon, Drawing style and Symbol shape is predefined by HRDF. All other fields can be freely assigned.
- At present (2019) however, HAFAS can only use fields K, N or L for matching, which is why information relevant to matching should preferably be stored in these fields.

7.6 Transport company information `BETRIEB`

Format matches the standard [1] partially.

Example:

```
00088 K "BLS" L "BLS-bls" V "BLS AG (bls)" N "ch:1:sboid:100015"

00088 : 000033

00244 K "DB " L "DB Regio" V "DB RegioNetz Verkehrs GmbH Westfrankenbahn"

00244 N "ch:2:sboid:DE800603"

00244 : 800603
```

Note:

- Import into the timetable collection: The information, including SBOID, is not imported by INFO+, but the administrations are mapped to the TU known in INFO+.

- The SBOID is made available in the OPERATION files, which are produced by the timetable collection.

- Language: In deviation from the standard [1], operation is supplied for the following languages:

  o BETRIEB_DE for german

  o BETRIEB_EN for english

   o BETRIEB_FR for french

   o BETRIEB_IT for italian

7.7 File with journey sequence information `FAHRTFLG`

Not supported.

7.8 File with direction information `DIRECTION`

Format matches partially the standard [1] and [2].

Note:
- The entries with prefix R are reserved for INFO+.
- Multilingual directional information is not supported.

7.9 Track/bus bay information GLEISE

Line format track text assignment

Format matches the standard [1].

Example:
```
8503000 000511 000011 #0000001

8574200 000123 004567 #0000003
```

Comments:
- Operating days: It must be ensured that the bit fields for the track data match the bit fields for the corresponding journey.
- General track assignment * per BP is not supported.

Line format track text definition

- GLEISE_LV95

- GLEISE_WGS

The format corresponds to the standard [1].

File GLEISE_LV95: Additionally with SLOID and coordinates of the tracks (LV95 format):

Example:
```
8500207 #0000001 G '1'
8500207 #0000001 A 'AB'
8503000 #0000002 G '13'
8574200 #0000003 G ''
8574200 #0000003 g A ch:1:sloid:74200:1:3
8574200 #0000003 k    2692827    1247287 680
```

File GLEISE_WGS: Additionally with SLOID and coordinates of the tracks (WGS84 format):

Example:
```
8500207 #0000001 G '1'
8500207 #0000001 A 'AB'
8503000 #0000002 G '13'
8574200 #0000003 G ''
```

```
8574200 #0000003 g A ch:1:sloid:74200:1:3
8574200 #0000003 k    8.667650   47.369881 680
```

Note on the line of stop 8574200 : the track designation " means that there is no explicit track designation at the location.

Note on WGS84: The altitude is the geographical altitude according to LV95 (and thus approx. 48m too low compared to the WGS84 value). Elevation is optional.

Remarks:

- The SLOID is transmitted with the feature g.
- The exact structure of the SLOID is defined in the documents on the Swiss ID for public transport [3] from SKI.
- The coordinates are transmitted with feature k. Format according to the postfix of the file name. The first two coordinates are right-justified, the height is left-justified (cf. BFKOORD, chapter 6.2).
- For all specifications: The combination of stop number plus index of the track text information must be unique. I.e. the index can start with 0000001 for each stop.

7.10 Specials `SONDERZG`

Not supported.

8 Changing information

8.1 Stop-related changing times `UMSTEIGB`

Format matches the standard [1].

Example:
```
9999999 05 05 STANDARD

5800010 04 04 Basel SBB
```

Note:

- Import/export: Only exported and not imported.

8.2 Changing times between administrations `UMSTEIGV`

Format matches the standard [1].

Example:
```
@@@@@@@ 85_____  80_____  02

8501234 75_____  56_____  04
```

Note:

- Source system: The `umsteigv` values come from DiDok

8.3 Line and direction-related changing times `UMSTEIGL`

Format matches the standard [1].

Example:
```
8500010 87_____ TE2 *         * 000011 ICE *          * 011  Basel SBB

8500010 87_____ TE2 #0000521 * 000011 ICN #0000090 * 011  Basel SBB

8500852 000879 NFB 91         * 000879 NFB 91          * 000  Reigoldswil, Dorfplatz
```

8.4 Guaranteed interchanges for lines `UMSTFWL`

Not supported.

8.5 Journey pair-related changing times `UMSTEIGZ`

Format matches the standard [1].

Example:

```
8002010 003079 80____ 003189 80____ 002! 000001 Flieden
```

8.6 Guaranteed interchanges for journeys `UMSTFWZ`

Not supported.

8.7 Waiting times on journeys involving changes `UMSTEIGW`

Not supported.

9 Realgraph

Not supported.

10 Address information

Not supported.

11 Additional files

11.1 `Feiertage`

Format does not match the standard.

Table 15: `Feiertage`

Column	Field	Description
1-10	Holiday	FEIERTAG.DATUM Date of holiday in format DD.MM.YYYY
12ff.		Name of the holiday in 4 languages. Name in D< deu>name in FR< fra>name in IT< ita>name in EN< eng>

Example:

25.12.2015 Weihnachtstag< deu>Noël< fra>Natale< ita>Christmas Day< eng>

26.12.2015 Stephanstag< deu> Saint Etienne< fra> Santo Stefano< ita> Boxing Day< eng>

Note:

- Content: Describes the general holidays for the timetable period.

12 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 `metabhf`. 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-Informations-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.

Term	Meaning
	LV95 coordinates for Bern are E=2,600,000 m (East) and N=1,200,000 m (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.