



# *DINO realisation specifications - öV-Switzerland*

Based on DINO specification 2.3

Author(s)	Working Group KIDS → Sub-Working Group Timetable Data
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Übersetzung	System Tasks Customer Information (CIP) In the event of discrepancies between the various language versions, the German version shall be deemed binding.



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### **Document directory**

[1] MENTZ GmbH, *DINO – Austauschformat Version 2.3*, Grillparzerstraße 18, 81675 München.

[2] Systemaufgaben Kundeninformation, «Standards,» [Online]. Available:  
<https://transportdatamanagement.ch/de/standards/>.

[3] Systemaufgaben Kundeninformation, «Verkehrsmittellisten,» [Online]. Available:  
<https://opentransportdata.swiss/de/dataset/verkehrsmittellisten>. [Zugriff am 12 2019].



### Change history

Version	Change	Editor	Date
1.0	First version presented at KIDS Soll-Daten	M. Steel L. Prod'hom	03.11.2022
1.1	Adjustment between draft and final DINO specification 2.3 Chapter 5, 6.3.5, 6.5.4, 6.5.5, 6.10., 6.10.1, 6.10.2, 6.10.3	M. Steel L. Prod'hom	21.03.2023

### Approval status:

Version	Date	Status

# 1 Introduction

## 1.1 Initial situation

Many transport companies supply their timetable data with the DINO interface 1.n from MENTZ. Since the company MENTZ has published a large extension with the DINO interface 2.3 [1], the working group KIDS Solldaten takes the opportunity to define some specifications so that the information is delivered in a uniform way when informing customers.

## 1.2 Basic format and deviations

The basis is the document "DINO - Exchange Format Version 2.2 [1]". The DINO data format is referred to below by the abbreviation DINO.

The DINO is a proprietary format of the company MENTZ. If deviations from the specified format are necessary, it should be ensured that additions suit the framework conditions of the format.

The following variant forms could be used if the situation demands it. No variant is currently applied:

- a) Additions outside of existing raw data files:  
New file can be exchanged.  
These extensions are marked as "outside the DINO format" in this document. 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 files can be expanded accordingly after consultation with MENTZ. The consultation is intended in particular to ensure that the function of existing MENTZ programmes is not impaired by the extension. 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.

## 2 Document structure

### 2.1 Document hierarchy and stakeholders

Based on the official DINO document [1], this document describes the realisation specifications for public transport in Switzerland, hereinafter referred to as "RV DINO" for short.

These are concretisations and deviations from the basic document with the aim of uniform application throughout the entire Swiss public transport system.

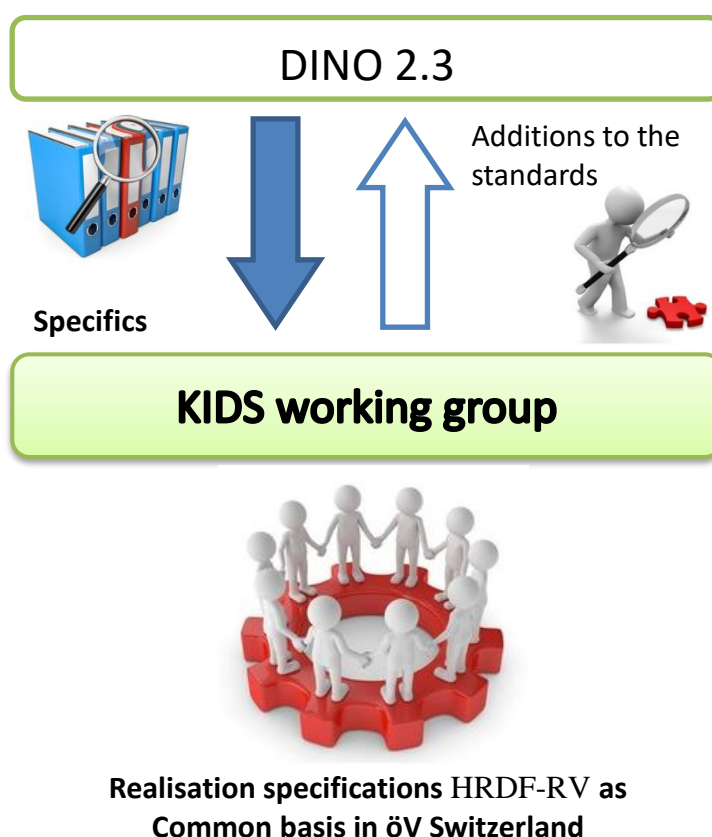


Figure 1: Connection KIDS and DINO.

The implementation rules 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 the agreement process of the UAG Solldaten concerning the uniform handling of the DINO fonts in 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. DINO realisation specifications - öV Schweiz (this document)
3. DINO exchange format version 2.2 [1]

#### 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**

From chapter 6 onwards, the document adopts the chapter structure from the document [1].

If no text is listed for a chapter, this means that the 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 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.

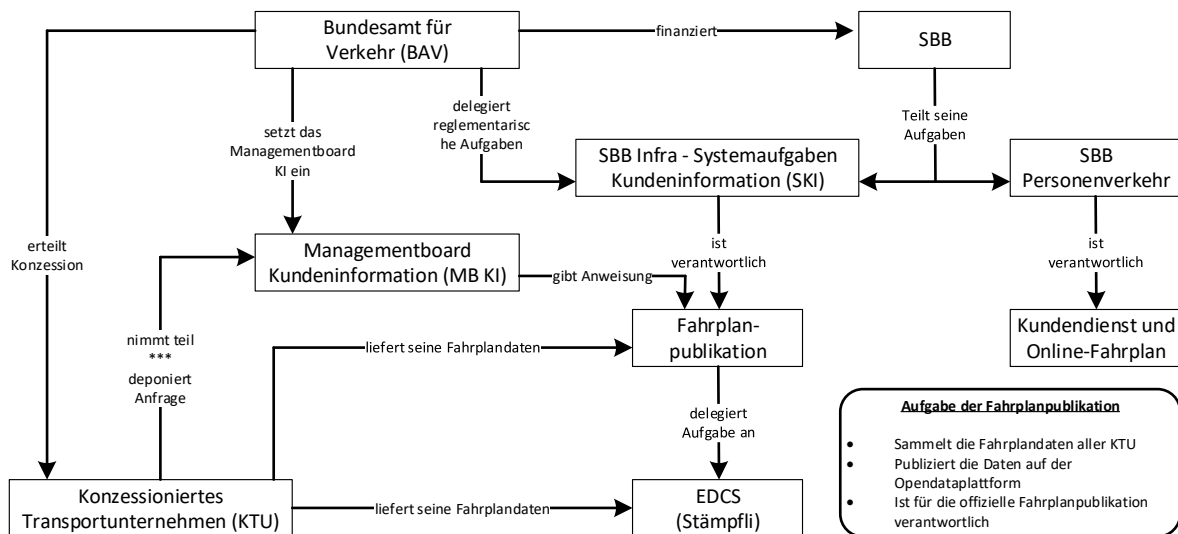


Figure 2: Overview responsibilities

#### 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.

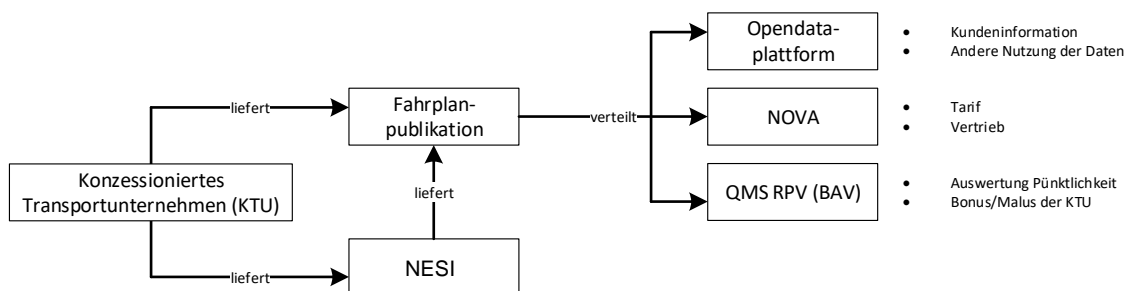


Figure 3: Overview data flow

## 4 Superordinate topics

### 4.1 File names

File names must conform to the specification with the prescribed names and endings.

The file name must be written in lower case.

The ending of the file must be `.din`.

Examples

```
stop.din, trip.din, notice.din, . . .
```

### 4.2 Stop

The identification of the stop is based on the specifications of DIDOK/ATLAS. It consists of the UIC country code and the service ID.

The identification field is 7 digits long: 2-digit for the UIC country code and 5-digit for the service ID. This is to be completed with leading zeros if the value of the identification is less than 10000.

For the file `stop_point`, the attribute `GLOBAL_ID` is to be filled with the value of the `SLOID` from DIDOK if the `GLOBAL_ID` is defined in DIDOK/ATLAS.

### 4.3 Attributes / Notice

For the `NOTICE` of the `CONTENT_TYPE 7` offer, the abbreviations according to the timetable collection are to be used. E.g. `RR` (seat reservation obligatory)

### 4.4 Offer category / Train categories

For the `TRAIN_CATEGORY`, the values according to the V580 harmonisation offer categories shall be applied.

### 4.5 Optional fields

If an optional field is not further described, it is deemed that no information is available for this item. If this statement is not sufficient, the documents must be consulted in accordance with the document hierarchy.

### 4.6 Comments

No comments are allowed in the `dino` files.

### 4.7 Journey time and transfer times to the minute

The journey time information is transmitted to the minute when the timetable is collected. The seconds are truncated (and not rounded).

Omitting the seconds can in certain cases lead to undesirable interchange relationships if the interchange time is defined to the second.



## 5 List of files

Topics	File name	Delivery property	Takeover <sup>1</sup> in the Timetable collection
General specification	<a href="#">character.set.din</a>	Optional	No
Calendar dates	<a href="#">version.din</a>	Mandatory	Yes
	<a href="#">day_type.din</a>	Mandatory	Yes
	<a href="#">day_attribute.din</a>	Mandatory	Yes
	<a href="#">day_type_2_day_attribute.din</a>	Mandatory	Yes
	<a href="#">day_type_calendar.din</a>	Mandatory	Yes
	<a href="#">service_restriction.din</a>	Mandatory	Yes
Location data	<a href="#">stop.din</a>	Mandatory	Yes
	<a href="#">stop_area.din</a>	Mandatory	No
	<a href="#">stop_point.din</a>	Mandatory	Yes
	stop_footpath_asset	Optional	No
	<a href="#">stop_footpath_din</a>	Optional	No
	<a href="#">stop_additional_name.din</a>	Optional	No
	<a href="#">stop_alias_placename.din</a>	Optional	No
	<a href="#">coordsys.din</a>	Optional	No
Fare data	<a href="#">fare_zone.din</a>	Optional	No
	<a href="#">neighbour_fare_zone.din</a>	Optional	No
	<a href="#">fare_zone_transition.din</a>	Optional	No
	<a href="#">fare_zone_transition_point.din</a>	Optional	No
Mode of transport	<a href="#">means_of_transport_desc.din</a>	Mandatory	No
Interchange times	<a href="#">transfer_matrix.din</a>	Optional	No
Vehicle types	<a href="#">vehicle_type.din</a>	Mandatory	No
	<a href="#">vehicle_type_delfi_attr.din</a>	Optional	No
	<a href="#">vehicle_door_delfi_attr.din</a>	Optional	No
Operator	<a href="#">operator.din</a>	Mandatory	No
	<a href="#">operator_branch_office.din</a>	Optional	No
	<a href="#">depot.din</a>	Optional	No
Operating branches	<a href="#">branch.din</a>	Optional	No
Line, network, operational data	<a href="#">timing_pattern.din</a>	Mandatory	Yes
	<a href="#">route.din</a>	Mandatory	Yes
	<a href="#">trip_purpose.din</a>	Optional	No
	<a href="#">line.din</a>	Mandatory	Yes
	<a href="#">vehicle_destination_text.din</a>	Optional	Yes
	<a href="#">trip_vdt.din</a>	Optional	Yes
	<a href="#">train_category.din</a>	Mandatory	Yes
	<a href="#">trip.din</a>	Mandatory	Yes
	<a href="#">trip_stop_time.din</a>	Mandatory	No
	<a href="#">vehicle_block.din</a>	Optional	No
	<a href="#">line_suppression.din (from 2.1)</a>	Optional	No

Table 1: List of files

<sup>1</sup>Transfer or interpretation for transfer to the timetable collection

Notes	<a href="#">notice.din</a>	Optional	Yes
	<a href="#">notice_str.din</a>	Optional	Yes
	<a href="#">service_constraint.din</a>	Optional	Yes
Interchange definitions	<a href="#">connection.din</a>	Optional	Yes
	<a href="#">interchange_definition.din</a>	Optional	No
	<a href="#">interchange_validity.din</a>	Optional	No
Sections and georeferenced data	<a href="#">link.din</a>	Optional	No
	<a href="#">link_geometry.din</a>	Optional	No
	<a href="#">link_force_point.din</a>	Optional	No
User-defined attributes	<a href="#">attribute.din</a>	Optional	No
	<a href="#">stop_attribute.din</a>	Optional	No
	<a href="#">Stop_area_attribute.din</a>	Optional	No
	<a href="#">Stop_point_attribute.din</a>	Optional	No
	<a href="#">Line_attribute.din</a>	Optional	No
Train scheduling	<a href="#">coupled_train.din</a>	Optional	No
	<a href="#">trip_part.din</a>	Optional	No
	<a href="#">trip_part_sequence.din</a>	Optional	No

## 6 Supplements for each file

### 6.1 Code page

#### 6.1.1 Character\_set.din

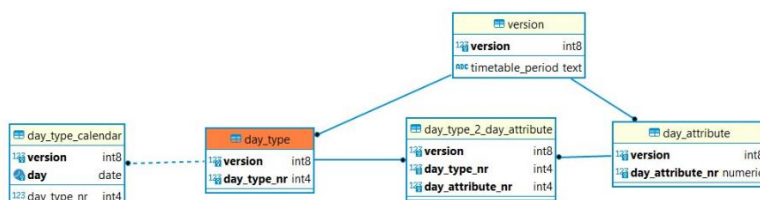
The file is ignored.

The content of all files must be supplied in UTF-8 format.

### 6.2 Calendar dates

#### General

The following files are to be used to map the calendar data.



The file `version` defines the time period, which serves as a general framework in which the services can be defined.

In the file `day_type`, a temporal section of the period defined in the file `version` is defined. For example, this excerpt contains all the same weekdays, e.g. every Monday to Friday.

In the `day_type_calendar` file, reference is made to each exact date contained in the `Day_Type`. The files `day_attribute` and `day_Type-2_day_attribute` are used for the description of the elements of the file `Day_type`.

#### Application example

**Abbildung vom Fahrplan nach DINO**  
«eine Lösungsvariante!»

**Gruppe von Tagesarten**

rec_day_attribute	rec_day_type
31; Montag-Freitag	1; Montag
32; Samstag	2; Dienstag
33; Sonntag	3; Mittwoch
	4; Donnerstag
	5; Freitag
	6; Samstag
	7; Sonntag

**Fahrplan**

Linie	Abfahrtsort	Abfahrtszeit	Anfahrtsort	Anfahrtszeit	Linie
1	1	07:00	2	07:10	1
1	2	07:20	1	07:30	1
1	3	07:30	4	07:40	1
1	4	07:40	3	07:50	1
1	2	07:50	1	08:00	1
1	1	08:00	2	08:10	1
1	3	08:10	4	08:20	1
1	4	08:20	3	08:30	1
1	2	08:30	1	08:40	1
1	1	08:40	2	08:50	1
1	3	08:50	4	09:00	1
1	4	09:00	3	09:10	1
1	2	09:10	1	09:20	1
1	1	09:20	2	09:30	1
1	3	09:30	4	09:40	1
1	4	09:40	3	09:50	1
1	2	09:50	1	10:00	1
1	1	10:00	2	10:10	1
1	3	10:10	4	10:20	1
1	4	10:20	3	10:30	1
1	2	10:30	1	10:40	1
1	1	10:40	2	10:50	1
1	3	10:50	4	11:00	1
1	4	11:00	3	11:10	1
1	2	11:10	1	11:20	1
1	1	11:20	2	11:30	1
1	3	11:30	4	11:40	1
1	4	11:40	3	11:50	1
1	2	11:50	1	12:00	1
1	1	12:00	2	12:10	1
1	3	12:10	4	12:20	1
1	4	12:20	3	12:30	1
1	2	12:30	1	12:40	1
1	1	12:40	2	12:50	1
1	3	12:50	4	13:00	1
1	4	13:00	3	13:10	1
1	2	13:10	1	13:20	1
1	1	13:20	2	13:30	1
1	3	13:30	4	13:40	1
1	4	13:40	3	13:50	1
1	2	13:50	1	14:00	1
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1	3	14:10	4	14:20	1
1	4	14:20	3	14:30	1
1	2	14:30	1	14:40	1
1	1	14:40	2	14:50	1
1	3	14:50	4	15:00	1
1	4	15:00	3	15:10	1
1	2	15:10	1	15:20	1
1	1	15:20	2	15:30	1
1	3	15:30	4	15:40	1
1	4	15:40	3	15:50	1
1	2	15:50	1	16:00	1
1	1	16:00	2	16:10	1
1	3	16:10	4	16:20	1
1	4	16:20	3	16:30	1
1	2	16:30	1	16:40	1
1	1	16:40	2	16:50	1
1	3	16:50	4	17:00	1
1	4	17:00	3	17:10	1
1	2	17:10	1	17:20	1
1	1	17:20	2	17:30	1
1	3	17:30	4	17:40	1
1	4	17:40	3	17:50	1
1	2	17:50	1	18:00	1
1	1	18:00	2	18:10	1
1	3	18:10	4	18:20	1
1	4	18:20	3	18:30	1
1	2	18:30	1	18:40	1
1	1	18:40	2	18:50	1
1	3	18:50	4	19:00	1
1	4	19:00	3	19:10	1
1	2	19:10	1	19:20	1
1	1	19:20	2	19:30	1
1	3	19:30	4	19:40	1
1	4	19:40	3	19:50	1
1	2	19:50	1	20:00	1
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1	3	20:10	4	20:20	1
1	4	20:20	3	20:30	1
1	2	20:30	1	20:40	1
1	1	20:40	2	20:50	1
1	3	20:50	4	21:00	1
1	4	21:00	3	21:10	1
1	2	21:10	1	21:20	1
1	1	21:20	2	21:30	1
1	3	21:30	4	21:40	1
1	4	21:40	3	21:50	1
1	2	21:50	1	22:00	1
1	1	22:00	2	22:10	1
1	3	22:10	4	22:20	1
1	4	22:20	3	22:30	1
1	2	22:30	1	22:40	1
1	1	22:40	2	22:50	1
1	3	22:50	4	23:00	1
1	4	23:00	3	23:10	1
1	2	23:10	1	23:20	1
1	1	23:20	2	23:30	1
1	3	23:30	4	23:40	1
1	4	23:40	3	23:50	1
1	2	23:50	1	00:00	1

**Fahrer**

rec_trip	rec_day_type
1	1; Montag-Freitag
2	2; Samstag
3	3; Sonntag
4	1; Montag-Freitag (Ruz Freitag)

**Verkehrsbeschränkung**

service_restriction	rec_day_type
1	1; Montag - Donnerstag
2	3; Ruz Freitag

**Firmenkalender**

Calendar of the company	rec_connection
20161219;Montag	1
20161220;Dienstag	2
20161221;Mittwoch	3
20161222;Donnerstag	4
20161223;Freitag	1;4
20161224;Samstag	2;3
20161225;Sonntag	3;4
20161226;Montag	1;2
20161227;Dienstag	3
20161228;Mittwoch	4
20161229;Donnerstag	1

**Durchbindungen**

rec_connection	rec_day_type
1	1; Montag
2	2; Dienstag
3	3; Mittwoch
4	4; Donnerstag
5	5; Freitag
6	6; Samstag
7	7; Sonntag

Abweichende Gültigkeiten zum Wochentagstyp als Verkehrsbeschränkung definieren

Outlook for the next DINO version: the construct with the Day\_Typ is only supported to a limited extent. Only one day type "daily" is mapped. The actual validity is then mapped exclusively with the class `service_constraint` in combination with the Day\_Type "daily".

### 6.2.1 version.din

This table shows the closed period. It must be included within the timetable period.

Mandatory fields

- VERSION\_TEXT
- TIMETABLE\_PERIOD
- Period\_Day\_From
- Period\_Day\_To
- TT\_PERIOD\_NAME must contain the export time.

### 6.2.2 day\_type\_calendar.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

### 6.2.3 day\_type.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

### 6.2.4 day\_type\_2\_day\_attribute.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

### 6.2.5 day\_attribute.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

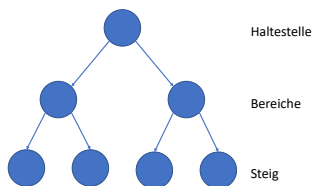
### 6.2.6 service\_restriction.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

An element of the table Service\_restriction forms the validity of the trips and further planning objects  
a. The element must contain all days of the entire validity of the version.

## 6.3 Location data

### Hierarchy (stop, area, riser)



A stop has 0 to n areas

A range has 0 to n gradients

A climb belongs to an area

An area belongs to a stop

#### Level stops

Stops in the timetable collection must be defined in advance in DIDOK/ATLAS.

The local stop attributes are not adopted.

The local stops are assigned via the EXTERNAL\_NUMBER or GLOBAL\_ID in the timetable collection. One of the two attributes must be filled.

EXTERNAL\_NUMBER contains the DIDOK number 85xxxxx.

GLOBAL\_ID contains the SLOID (for stop) listed in DIDOK.

#### Level holding area

Are not included in the timetable collection

#### Level retaining edge

The local holding edge attributes are not adopted.

The local stop edge is assigned via the GLOBAL\_ID in the timetable collection.

GLOBAL\_ID contains the SLOID (for holding edge) kept in DIDOK.

### 6.3.1 stop.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

STOP\_NO: Local system dependent number

GLOBAL\_ID: SLOID on a Swiss scale

Outlook for the next DINO version: A new, additional attribute: EXTERNAL\_NUMBER is inserted. In this field, the number of the stop is to be exchanged according to the DIDOK definition.

### **6.3.2 stop\_area.din**

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

### **6.3.3 stop\_point.din**

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

The local stop edge is assigned via the GLOBAL\_ID in the timetable collection.  
GLOBAL\_ID contains the SLOID (for holding edge) kept in DIDOK.

### **6.3.4 stop\_footpath**

This information is not included in the timetable collection.

Comments:

- Source system: The source system for walks is INFO+.
- Granularity: Walks are defined at the stop level.

### **6.3.5 stop\_footpath\_asset**

This information is not included in the timetable collection.

### **6.3.6 stop\_additional\_name.din**

This information is not included in the timetable collection.

Comments:

- Source system: The source system for name additions for stops is INFO+.

### **6.3.7 stop\_alias\_placename.din**

This information is not included in the timetable collection.

Comments:

- Source system: The source system for name additions for stops is INFO+.

### 6.3.8 coordsys.din

This information is not included in the timetable collection.

Comments:

- Source system: The source system for coordinates is DIDOK.

## 6.4 Fare data

### 6.4.1 fare\_zone.din

This information is not included in the timetable collection.

### 6.4.2 neighbour\_fare\_zone.din

This information is not included in the timetable collection.

### 6.4.3 fare\_zone\_transition.din

This information is not included in the timetable collection.

### 6.4.4 fare\_zone\_transition\_point.din

This information is not included in the timetable collection.

## 6.5 Line / network / operating data

### 6.5.1 means\_of\_transport\_desc.din

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

Comments:

V580 Mode of transport (INFO+: VM type)

<https://opentransportdata.swiss/de/dataset/vm-liste/resource/59d4cf59-800e-4c8d-ae0f-b8e9936afe9e>

### 6.5.2 transfer\_matrix.din

This information is not included in the timetable collection.

Comments:

- Source system: The source system for name additions for stops is INFO+.

### 6.5.3 vehicle\_type.din

This information is not transferred to the timetable collection, but the NF information can be obtained from the attribute VEH\_TYPE\_ACCESS\_EQUIP (only 2 would be low-floor capable).

If the information NF is redundant both in the `notice` and via the information of the table `vehicle_type`, only the information NF of the `notice` is taken into account.

To be discussed with the KIDS Plenum

Possibly element: VEH\_TYPE\_ACCESS\_EQUIP (only 2 would be low-floor suitable)

#### **6.5.4 vehicle\_type\_delfi\_attr.din**

This information is not included in the timetable collection

#### **6.5.5 vehicle\_door\_delfi\_attr.din**

This information is not included in the timetable collection

#### **6.5.6 operator.din**

mandatory for the structure and interpretation of the DINO data, but are not adopted in the timetable collection.

Business organisations in the timetable collection must be defined in advance in DIDOK.  
OP\_CODE must contain the value of the GO number

#### **6.5.7 operator\_branch\_office.din**

This table is optional

This information is not included in the timetable collection.

#### **6.5.8 depot.din**

This table is optional

This information is not included in the timetable collection.

#### **6.5.9 branch.din**

This table is optional

This information is not included in the timetable collection.

#### **6.5.10 timing\_pattern.din**



mandatory for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

"Route-dependent journey and stop times".

#### **6.5.11 route.din**

mandatory for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

#### **6.5.12 trip\_purpose.din**

This table is optional

This information is not included in the timetable collection.

Not evaluated by the import

#### **6.5.13 line.din**

mandatory for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

#### **6.5.14 vehicle\_destination\_text.din**

optional for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

The timetable collection only takes over the value of the attribute `VDT_LONG_NAME`. The other values are ignored.

#### **6.5.15 trip\_vdt.din**

optional for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

### **6.5.16 train\_category.din**

Mandatory for the structure and interpretation of DINO data.  
This information is not included in the timetable collection.

Please note: Only values according to the offer category as defined in document "V580 Harmonisation of means of transport" shall be used.

### **6.5.17 line\_suppression.din**

optional, will not be evaluated.

## **6.6 Timetable data**

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

### **6.6.1 trip.din**

mandatory for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

Outlook for next DINO version The notices must be transmitted in full via the notice\_str table. The fields NOTICE, NOTICE\_1,... are removed from the table.

### **6.6.2 trip\_stop\_time.din**

optional for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

Overrides the hold time for a stop to except the corresponding timing\_pattern.

### **6.6.3 vehicle\_block.din**

This information is not included in the timetable collection.

### **6.6.4 notice.din**

optional for the structure and interpretation of the DINO data.

For interpretation of the data, see chapter 7.2 Interrelationships of modelling a journey in HRDF and DINO.

The supported Content\_Types are converted for the driving collection as follows:

#### CONTENT\_TYPE

- 0 .. other note (default) INFOTEXT with info text code "hi
- 1.. Note Train name INFOTEXT with info text code "ZN".
- 2 .. Note on call bus as converted to "Other note".
- 3 .. Note Bicycle transport not supported
- 4 .. Note track GLEIS
- 5 .. R-track not supported
- 6 .. Driver text not supported
- 7 .. Offer ATTRIBUT (See also chapter 4.3 Attributes / Notice)
- 8 .. Tariff code INFOTEXT with info text code "TC

DISPLAY\_TYPE is not evaluated. Notes are always displayed (corresponds to 0 ... always show)

#### Comments

- If LINE\_NR is filled, the notice is only valid for this line.
- In order to correctly map spaces and special characters, the note texts in NOTICE\_TEXT are to be saved in apostrophes of export programmes.
- The control characters, such as "\n", are not supported.

#### **6.6.5 notice\_str.din (formerly hinw\_str.din)**

optional for the structure and interpretation of the DINO data.

The following notes can be mapped in this table:

- Line-related notices
- Trip-related (timetable-related) notices
- Route-segment-related notices
- Stop-related notices

#### **6.6.6 service\_constraint.din**

This table is optional

Used for the interpretation of the runs.

#### Examples

No.	DIVA Code	Meaning	Illustration in HRDF
0		Departure stop	8508005 Burgdorf 00711
	A	Departure stop, Only alighting → not permitted!	8508005 Burgdorf -00711

		In the case of a through connection, this constellation can make sense. I.e. you may only get off the train during the feeder journey.	
3	D	Boarding only	8508268 Zollbrück -00646 00646
0		Getting off and on	8508269 New mill 00644 00644
10 4 5	T I	Operating stop No inner-city traffic possible No getting in and out (unproductive) <b>General aspects: Type 4,5,10 and -1 should not be imported, processed because they are not relevant for the clients. Exceptions are through connections and RhB.</b> <b>Possibly to be discussed</b>  <b>Possible interpretation: As soon as the arrival and departure times are different, it is to be considered as a service stop, otherwise as a transit stop.</b>	8508266 Lützelflüh -00655 -00655
9	S	Operational stop for carriages (change of suspension, NoBoardingAndAlighting)	8508266 Lützelflüh -00655 -00655
-1		℞ ☞ •• ☞ ℞ ℞ ℞ →	For direct wagons, through connections and RhB 8508266 Lützelflüh -00655 -00655
2	A	Get out only	85080 Upper Castle 00704 -00704
0		Arrival stop	8508207 Langnau 00640
	D	Arrival stop, boarding only → not permitted  In the case of a through connection, this constellation can make sense. I.e. boarding would have to be allowed on the outbound journey.	8508207 Langnau -00640
12	BE	Demand stop, boarding only	*A X 8508268 8508268 8508268 Zollbrück -00646 00646
1	B	Demand stop, disembarkation and embarkation	*A X 8508269 8508269 8508269 New mill 00644 00644
11	BA	Demand stop, Disembark only	*A X 8508080 8508080 85080 Upper Castle 00704 -00704
-1			
6	FA	<b>with bike only get off</b>	*A VR 8508269 8508269 8508269 Thun, Train Station 00644 -00644
7	FE	<b>with bike only boarding</b>	*A VR 8508269 8508269 8508269 Thun, train station -00644 00644
8	L	<b>with bicycle no operation in town</b>	*A VR 8508269 8508269 8508269 Thun, train station -00644 -00644

In the code of the table `service_constraint`, the values 6, 7 and 8 are not fully interpreted. The information concerning the bicycles is not processed.

## 6.7 Connection data

### 6.7.1 connection.din

This table is optional.

The table corresponds to the bindings in HRDF format.

Outlook for the next DINO version: the construct with the Day\_Typ is only supported to a limited extent. Only one day type "daily" is mapped. The actual validity is then mapped exclusively with the class `service_constraint` in combination with the Day\_Type "daily".

### **6.7.2 interchange\_definition.din**

This information is not included in the timetable collection.

### **6.7.3 Interchange\_validity.din**

This information is not included in the timetable collection.

## **6.8 Route segments and georeferenced service journey patterns**

### **6.8.1 link.din**

This information is not included in the timetable collection.

### **6.8.2 link\_geometry.din**

This information is not included in the timetable collection.

### **6.8.3 link\_force\_point.din**

This information is not included in the timetable collection.

## **6.9 User-defined attributes**

### **6.9.1 Attributes.din**

This information is not included in the timetable collection.

### **6.9.2 Stop\_attribute.din**

This information is not included in the timetable collection.

### **6.9.3 Stop\_area\_attribute.din**

This information is not included in the timetable collection.

### **6.9.4 Stop\_point\_attribute.din**

This information is not included in the timetable collection.

### **6.9.5 line\_attribute.din**

This information is not included in the timetable collection.

## **6.10 Train scheduling: Definition of train sets (wing trains)**

### **6.10.1 coupled\_train.din**

This information is not included in the timetable collection.

### **6.10.2 trip\_part.din**

This information is not included in the timetable collection.

### **6.10.3 trip\_part\_sequence.din**

This information is not included in the timetable collection.

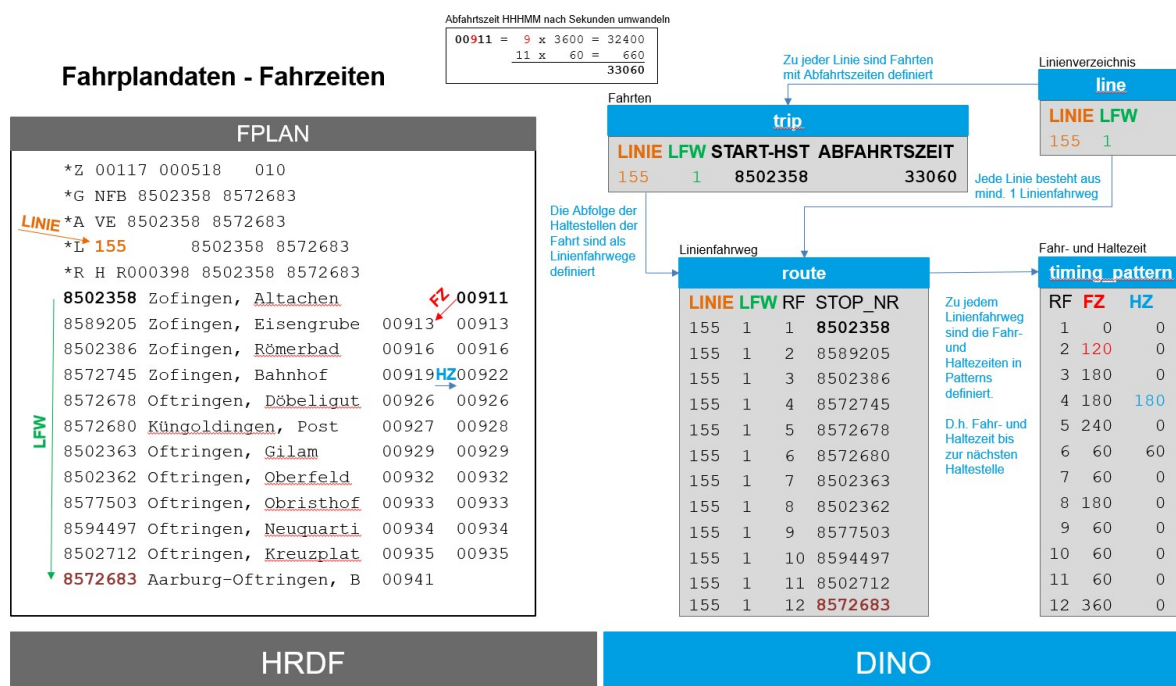
## 7 Annexes

### 7.1 List of permissible train categories

Please note: Only values according to the offer category as defined in document "V580 Harmonisation of means of transport" may be used.

### 7.2 Interrelationships of modelling a journey in HRDF and DINO

Additionally describe \*R line (vehicle\_destination\_text)



With the information of the *trip* file alone, the definition of the run is incomplete. It is to be completed with the information from further files.

The following information can be found per entry in the file *trip* to set up the run:

#### Definition of the travelled stop

With the attributes VERSION, LINE\_NR, STR\_LINE\_VAR the list of relevant stops of the run can be found in the files *Line* and *Route*. With the attribute LINE\_DIR\_NR it is communicated whether the order of the stop corresponds with the definition of the route (Direction = 1) or whether the order of the stop is to be interpreted as a mirror image with the definition of the route (Direction = 2).

The attribute DEP\_STOP\_NR defines the starting point of the run. If the point occurs more than once in the definition of the route, the element with the corresponding DEP\_STOPPING\_POINT\_NR shall be considered. The stops before the starting point are not part of the run.

The attribute `ARR_STOP_NR` defines the end point of the run. If the point occurs more than once in the definition of the route, the element with the corresponding `ARR_STOPPING_POINT_NR` shall be considered. The stops after the end point are not part of the run.

### Calculation of travel times

The travel times are to be calculated. The following elements are required:

- a) The start time of the run. This can be found in the file *trip* : the `DEPARTURE_TIME` attribute contains this information. The time is defined in seconds from 00:00 (example: 06:45 corresponds to  $6 \times 3600s + 45 \times 60s = 24300s$ )
- b) The temporal behaviour over all frequented stops. In the *timing\_pattern* file, the duration of the journey and the duration of the stay per stop are defined. For each stop, the journey time is to be calculated first:
  - a. Arrival time: Departure time of the previous stop plus the duration (travel time) of the journey between the 2 neighbouring stops.
  - b. Departure time: Calculated arrival time plus the duration of the stay (stop time) at the bus stop.
- c) For certain *trips* , the length of stay can be specially defined (trip specific stop time). This information can be found in the file *trip\_stop\_time* and replaces the value of the definition found in the file *timing\_pattern*.

### Determination of the validity of the run

A single validity is defined per *trip*. This is defined with the help of the attributes `DAY_ATTRIBUTE_NR` and `RESTRICTION`. The effective validity of the trip is determined by the logical AND operation of `DAY-ATTRIBUT` and `SERVICE_RESTRICTION`.

### Determination of the holding code

The exact behaviour of the run is described per trip and stop. This information is defined in the *service\_constraint* file.

Question: For every stop or "only the exceptions" (where is the rule)





### More Information


The following information can still be found in the file *trip*:

- 5 Offers or indications defined for the whole run and the whole validity. If offers / notices are defined with geographical or time restrictions, the information can be found in the *notice\_str* files.
- Number of the journey: the following attributes are available: `TRAIN_NR`, - `TRIP_ID` - `TRIP_ID_PRINTING`  
<todo> Question: Which order ?
- Transport company: The attribute `OP_CODE` contains this information
- SJYID: The attribute `GLOBAL_ID` contains this information



## 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>metabhf</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  Real-time Hub. Sold-to party: FOT, system management: SBB
HaCon	Code for Hannover Consulting mbH: Leading software specialist for planning, dispatch and information systems for public transport. The best-known product is  . HaCon has been a member of the Siemens family since 2017.
HAFAS	HaCon timetable information
HRDF	Short designation for HAFAS raw data format. Version 5.20.39 is meant unless otherwise stated. See [2]. Identified with an added version number (e.g. HDRF 5.40). For HRDF 5.40 see [1]
INFO+	Implementation of the National Timetable Collection. Sold-to party: 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. LV03 has distortions compared to WGS84 coordinates (due to the measurement methods used at the time), which is why  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 (North).
National Real-Time Data Platform	Integrates the real-time sources from different transport companies in Switzerland into one national real-time data platform. The current version of the National Real-time Hub is 

Term	Meaning
National Timetable Collection	Digital collection of timetables of all licensed transport companies in Switzerland. The current version of the National Timetable Collection is  .
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.