

XSD2017d

VDV implementation rules 453 – Swiss public transport system

Based on VDV Guideline 453 version 2.6.1

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Change history from V 1.0 to 1.1

Section	Change	Editor	Date
Sect. 1.1	The implementation rules V1.1 support the new VDV Guideline 453 V2.4 dated July 2015	KIDS working group	22.09.15
Sect. 1.2.3	Mandatory fields: specifying mandatory fields without a value is not permitted in the Swiss public transport system Optional fields: resetting optional fields by omitting the value is allowed.	KIDS working group	22.09.15
Sect. 5.1.4.2	Subscription data can be retransmitted in different data packets in succession. Include as much detail as possible.	KIDS working group	22.09.15
Sect. 1.4	DIDOK stop list [4] was adopted as reference for stops and transport companies (business organisation numbers) in implementation rules.	KIDS working group	22.09.15
Sect. 6.1.5	The FahrtID (journey ID) element was defined as mandatory (required for unique ID and referencing of journeys) Uniform format in Swiss public transport system for FahrtBezeichner (journey identifier defined: [UIC country code]:[Business organisation number]:[Journey reference] FahrtBezeichner (journey IDs) for the same journey must match in VDV453 and VDV454 services.	KIDS working group	22.09.15
Sect. 6.1.6.1	Uniform format in Swiss public transport system for LinienID (line ID) defined: [UIC country code]:[Business organisation number]:[Technical line key] or [Transport number]	KIDS working group	22.09.15
Sect. 6.2.4.1.1	Uniform delay of 30 seconds across all systems in Swiss public transport.	KIDS working group	22.09.15

Change history from V 1.1 to 1.3

Section	Change	Editor	Date
1.4	Reference [5] added	C. Heimlicher	18.12.17
5.1.4.1	Content deleted by link to section in text. DatensatzAlle=true (dataset all = true) redefined in section 4.1.4.2.1.	J. Wichtermann	02.11.17
5.1.4.2	Text added: The data supplier can decide whether it wants to use the WeitereDaten (more data) mechanism or not.	D. Rubli	07.12.17
5.1.4.2.1	New section included from VDV Guideline 453.	J. Wichtermann	17.07.17
6.1.7	Section revised in order to harmonise transport. In particular, the transport category sources were replaced by transport categories and the table was added.	C. Heimlicher	18.12.17
6.1.9	Section expanded in order to harmonise transport and table added.	C. Heimlicher	18.12.17
6.1.12	New section included from VDV Guideline 453. The subsequent sections shift in numbering.	J. Wichtermann	17.07.17
6.2.4.3.1	New elements from VDV Guideline 453: AnkunftssteigText and AnkunftsSektorenText	J. Wichtermann	17.07.17
6.2.4.3.1. 6.2.4.3.2. 6.3.8.3.1. 6.3.8.3.5.	Transport category sources replaced by transport categories	C. Heimlicher	18.12.17
6.2.4.3.2	New elements from VDV Guideline 453: VonRichtungsText, AnkunftszeitASBPlan, HaltID, HaltepositionsText and FahrtInfo.	J. Wichtermann	17.07.17
6.3.8.2	Just updated added from VDV Guideline 453	J. Wichtermann	17.07.17
6.3.8.3.1	New elements from VDV Guideline 453: FahrtBezeichnerText, AnkunftssteigText, AbfahrtssteigText, AnkunftsSektorenText, AbfahrtsSektorenText, Einsteigeverbot, Aussteigeverbot and Durchfahrt	J. Wichtermann	17.07.17
6.3.8.3.7	New elements from VDV Guideline 453: VonRichtungsText, AnkunftszeitAZBPlan, AbfahrtszeitAZBPlan, HaltID, HaltepositionsText, FahrtInfo.	J. Wichtermann	17.07.17
6.2.3.1	Section from VDV Guideline 453 added.	J. Wichtermann	02.11.17
6.2.3.2	Section from VDV Guideline 453 added.	J. Wichtermann	02.11.17
6.2.3.3	Section from VDV Guideline 453 added.	J. Wichtermann	02.11.17

6.2.3.3.1 6.2.4.3.1 6.2.4.3.2 6.3.8.3.1 6.3.8.3.5	The structure for FahrtInfo (journey info) and the ProduktID (product ID) and BetreiberID (operator ID) elements are now mandatory.	J. Wichtermann	02.11.17
6.2.4.2	Preview time added.	J. Wichtermann	02.11.17

Change history from V 1.3 to 1.4.2

Section	Change	Editor	Date
Various	Only changes to the Guideline are listed in the structures.	J. Wichtermann	28.11.2019
1.1	Instruction repeated: version XSD2017.c must always be used across the Swiss public transport system.	J. Wichtermann	14.09.2020
1.4	Adapted for new versions.	J. Wichtermann	31.08.2020
6.1.2	Date and time formats are already clearly defined in VDV Guideline 453 and can be omitted here.	J. Wichtermann	28.11.2019
6.1.7	The list of permitted ProduktIDs (product IDs) was deleted and instead a link to the current document was provided in Section 1.4	J. Wichtermann	28.11.2019
6.1.9	Cross-references added	J. Wichtermann	14.09.2020
6.1.13	Missing section: "Latency and processing analysis" added and its use defined across the Swiss public transport system.	J. Wichtermann	14.09.2020
6.1.14.1	The format for HaltepositionsText (stopping position text) was adopted in the implementation rules, including separator signs for rail.	J. Wichtermann	14.09.2020
6.1.14.3	Durchfahrt (travel through) incl. conversions added	J. Wichtermann	14.09.2020
6.1.14.4	Einsteigeverbot (no boarding) incl. conversions added	J. Wichtermann	14.09.2020
6.1.14.5	Aussteigeverbot (no alighting) incl. conversions added	J. Wichtermann	14.09.2020
6.2.3.3.1	Only changes to VDV Guideline 453 are listed. FahrtInfo (journey info), ProduktID (product ID) and BetreiberID (operator ID) mandatory in xxxFahrplanlage and xxxFahrtLoeschen	J. Wichtermann	31.08.2020
6.2.3.3.2	Missing section: "Information on direct communication" added.	J. Wichtermann	28.11.2019
6.2.4.2	Only changes to VDV Guideline 453 are listed.	J. Wichtermann	14.09.2020
6.2.4.2.2	Only changes to VDV Guideline 453 are listed. LinienID (line ID) clarification added	J. Wichtermann	31.08.2020

6.2.4.2.3	Only changes to VDV Guideline 453 are listed. AbbringerInfo (connector info): Information on FahrtInfo (journey info), tracks, sectors and HaltepositionsText (stopping position text) added.	J. Wichtermann	14.09.2020
6.2.4.3.1	Only changes to VDV Guideline 453 are listed. Cross-reference of HaltepositionsText (stopping position text) format among others added.	J. Wichtermann	14.09.2020
6.2.4.3.2	Only changes to VDV Guideline 453 are listed. Cross-reference of HaltepositionsText (stopping position text) format added.	J. Wichtermann	14.09.2020
6.3.8.2	Only changes to VDV Guideline 453 are listed.	J. Wichtermann	14.09.2020
6.3.8.3.1	Only changes to VDV Guideline 453 are listed. Several cross-references added. Implementation instruction: The new elements AnkunftFaelltAus (arrival cancelled) and AbfahrtFaelltAus (departure cancelled) must be received, evaluated and forwarded. More details about the conversion added.	J. Wichtermann	14.09.2020
6.3.8.3.5	Missing section: "Transmitting special text" added and its use defined across the Swiss public transport system.	J. Wichtermann	14.09.2020
6.3.8.3.6	Missing section: "Deleting special text" added and its use defined across the Swiss public transport system.	J. Wichtermann	14.09.2020
6.3.8.3.7	Only changes to VDV Guideline 453 are listed. Several cross-references added. Cross-reference of HaltepositionsText (stopping position text) format added.	J. Wichtermann	14.09.2020
10	As well as removed from the VDV Guideline	J. Wichtermann	31.08.2020

Change history from V 1.4.2 to 1.4.3

Section	Change	Editor	Date
page 1. 1.1 1.4	XSD2017c replace by XSD2017d.	J. Wichtermann	07.04.2021
page 1. 1.1 1.4	VDV453 version 2.6 replace by version 2.6.1.	J. Wichtermann	07.04.2021
1.4	VDV454 version 2.2 replace by version 2.2.1.	J. Wichtermann	07.04.2021

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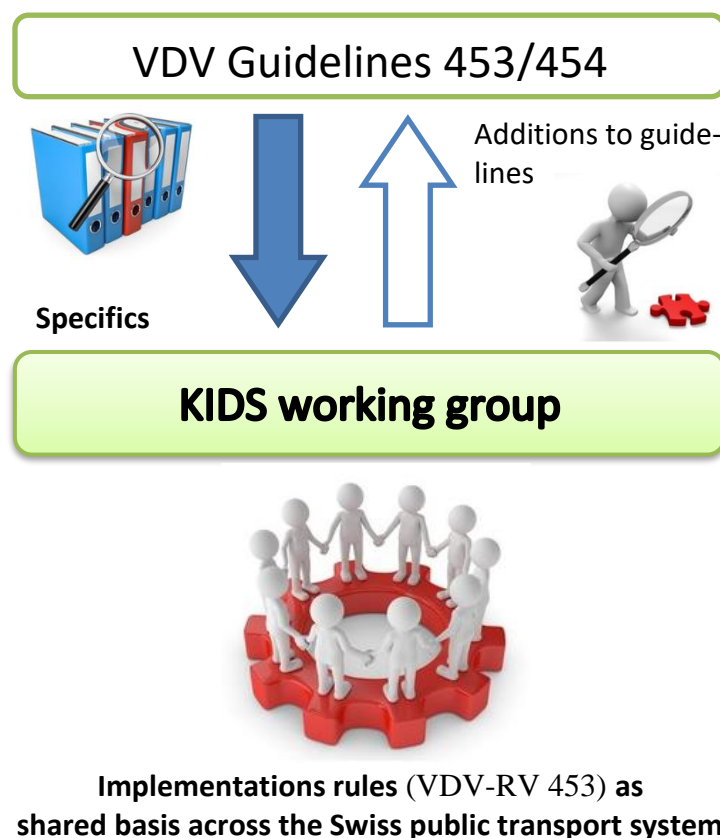
Version	Date	Status
1.0	07.11.2014	Approved by IT committee (VöV)

1.1	21.10.2015	Approved by IT committee (VöV)
1.2	01.10.2018	Reviewed by IT committee and recommended for approval
1.2	24.10.2018	Approved and declared binding by SKI Mgmt Board
1.4.2	11.11.2020	Approved and declared binding by SKI Mgmt Board
1.4.3	05.05.2021	Approved and declared binding by SKI Mgmt Board

1. 1. Preliminary remarks

Based on the official VDV Guideline 453 [1] (published by the German Association of Transport Companies (VDV)), this document describes the implementation rules for public transport in Switzerland, hereinafter designated as “VDV-RV 453”.

It makes clear the specifics and deviations from the official guideline, with the aim of uniform application across the entire Swiss public transport system.



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) and are the result of a standardisation process that concerns the uniform application of VDV Guidelines across the Swiss public transport system.

The implementation rules are officially approved by the IT committee (KIT) of the Association of Public Transport (VöV).

The implementation rules essentially comprise:

- specifics on points that are knowingly left abstract and vague in the VDV Guideline.
- specifics on points that were previously not handled uniformly across the Swiss public transport system
- conscious deviations from the official VDV Guideline within the Swiss public transport system.

1.1. Supported versions

The currently supported version of VDV Guideline 453 “Actual data interface – Ensuring connections – Dynamic passenger information – Visualisation – General messaging service” is **version V2.6.1** [1].

The XSD used to validate the XML messages is XSD **version 2017.d** (without Siri) [2].

1.2. Document structure and scope

1.2.1. Scope

These implementation rules for the Swiss public transport system (VDV-RV 453) are a supplement to the official VDV Guideline 453 and describe only the deviations, changes and specifics to this guideline. This document does **not** replace the official VDV Guideline 453 and therefore does not contain the complete information needed to implement or understand the VDV453 interface.

In addition to these implementation rules, the respective partners require an agreement that is even more specific than described here and is tailored to the individual circumstances and needs of the individual partners. This VDV interface specification specifies points not described here and may also contain explicit deviations and additions to VDV-RV 453. These bilateral or multilateral specifications (hereinafter referred to as Partner2Partner specifications) should always refer to this VDV-RV 453 and be based as closely as possible on this.

This document should not be interpreted as a contract. The contractual situation between two partners or their suppliers is not part of this document.

1.2.2. Uniform chapter structure

In order to simplify a direct comparison between the implementation rules and the official VDV Guideline, the section structure of the official VDV Guideline 453 shall be adopted consistently in this document, **starting with Section 2**, [1].

In detail, this means that:

- The official VDV Guideline 453 generally applies. The statements and definitions set out in [1] are not repeated in this document¹.
- A **blank section** in this document means that the original VDV Guideline applies without exceptions or additional stipulations. The section is marked as follows: “(see VDV Guideline 453)”.
- If specifics or deviation from the standard is necessary due to special circumstances within Swiss public transport, these will be described in detail in the section in question.
- The official VDV Guideline 453 purposefully does not make any stipulations on metadata for data exchange between VDV partners. Stipulations on individual metadata and its structure, which apply to the entire Swiss public transport system as a rule,² are described in the relevant sections.

¹ An exception to this rule will be made if a brief description of the normal case defined in VDV Guideline 453 is required or practical in order to understand a following text or the general context.

² The rules are defined by the KIDS working group and apply as the standard for the Swiss public transport system.

The consistency of the section structure is guaranteed, with the following caveat:

If an explanation or addition is necessary and does not match the specified section structure, a separate section will be added at the end of the section level in question, which always has the extra text “(addition for VDV-RV 453)” in the title. This section (including any subsections) does not correspond to the official VDV Guideline 453 and therefore by placing it at the end of the section level it does not affect other section numbers that follow it.

1.2.3. Mandatory, optional and non-supported fields

In the tables describing the XML structure of a data element, the last column specifies whether the element in question is mandatory or optional. If use deviates from the original VDV Guideline 453, the value in this document is shown in red.

Mandatory	Element must be specified in the XML structure and contain a semantically meaningful value. Specifying a mandatory field without a value is not allowed.
Optional	<p>Element can be specified or can be omitted. If the element is specified, it should contain a semantically meaningful value.</p> <p>A previously delivered value can be reset by explicitly not specifying the value when the element is transferred again (if this is permitted by the XSD definition).</p> <p>If the optional element is omitted in the case of a change notification, the value from the last transfer applies.</p> <p>If the optional element is omitted in the case of a complete journey, the value is reset to the default (if defined) or otherwise left blank (null).</p>
n/a	<p>Element is not supported. If it is specified, the content will be ignored</p> <p>All data elements that are not supported or are not known to the system-specific XSD are to be ignored by the system. A processing or validation error must not result from this.</p>

Table 1: Mandatory and optional fields

1.3. Binding nature

This document describes how VDV Guideline 453 is applied and interpreted specifically within Switzerland. It forms the basis of agreements for VDV connection between the individual public transport partners for exchanging current data.

In addition to the stipulations in this document, the respective partners will not need to agree upon metadata defined either here or in the official VDV specification.

1.4. Referenced documents

- [1] German Association of Transport Companies (VDV)
VDV Guideline 453, Actual data interface – Timetable information, version 2.6.1,
Cologne (Germany), 2021
<https://transportdatamanagement.ch/en/standards/>
- [2] German Association of Transport Companies (VDV)
XML schema VDV453_incl_454_V2017.d.xsd (version: “2017.d”), Cologne (Germany),
2021
<https://www.vdv.de/i-d-s-downloads.aspx>
- [3] German Association of Transport Companies (VDV)
VDV Guideline 454, Actual data interface – Timetable information, version 2.2.1,
Cologne (Germany), 2021
<https://transportdatamanagement.ch/en/standards/>
- [4] Swiss Federal Office of Transport (FOT)
Stops (DiDok list), Bern (Switzerland)
<https://opentransportdata.swiss/en/dataset/didok>
- [5] Alliance Swiss Pass
V580 – FIScommun / Produkt Nr. 06
<https://www.allianceswisspass.ch/de/asp/Downloadsindex.php?section=downloads&download=14462>

2. Introduction

2.1. General objective

This document, together with the official VDV Guideline 453 [1], defines the Swiss-wide standard for implementing the VDV interface, as well as individual data structures, based on the mutual exchange of real-time transport information between public transport companies using the ITCS (Intermodal Transport Control System) or “data platforms”.

Both documents when taken together describe in detail:

- what data can be exchanged between public transport partners
- what elements of the VDV Guideline are supported within the Swiss public transport system
- explicit deviations from the corresponding VDV Guideline
- the format of individual data elements
- the content and time-related data flows
- what agreements concerning metadata are necessary
- what must be ensured for operation of the interface
- how the data is exchanged (formats, communication protocols, etc.)
- how data is to be interpreted if this is not clear from VDV Guideline 453 or if its use deviates from VDV Guideline 453

2.1.1. Transport (addition for VDV-RV 453)

The term “*transport*” used in this document refers to all means of transport relevant to customer information (e.g. train, bus, tram, boat, funicular, etc.). An individual trip on a means of transport is called a “*journey*”.

2.2. Objectives

(see VDV Guideline 453)

2.3. Overall concept

(see VDV Guideline 453)

3. Introduction and basic definitions

(see VDV Guideline 453)

4. Architecture

(see VDV Guideline 453)

5. “Basic infrastructure” interface description

5.1. Subscription procedures

5.1.1. Overview

(see VDV Guideline 453)

5.1.2. Setting up subscriptions

There are some events that lead to all of the subscriptions set by a client needing to be set up again.

Client subscriptions are set up again in the following cases:

- After the client has been restarted (e.g. after a system failure or after client maintenance work), all subscriptions that the client set on the server previously need to be deleted internally. All subscriptions must then be set up again by the client.
- After the server that the client uses to determine that the server start time has been updated in the status responses is restarted.
- At a time specified by the partner in question (e.g. early morning outside of normal office hours). The reason for this may be the daily initialisation of the system or a subscription refresh. It is a good idea to refresh subscriptions on a daily basis. To avoid problems caused by daylight saving time, a time after 3am is considered optimal for this process.

5.1.2.1. Subscription query (*AboAnfrage*)

(see VDV Guideline 453)

Client side

Before the subscriptions for a service are first set up, a `<StatusAnfrage>` (status query) is sent to the partner system. If a positive `<StatusAntwort>` (status response) is then received, indicating that the partner is ready to send data, the subscriptions are set up on the server side.

If the server has data once the subscriptions are set up, this must be signalled via a `<DatenBereitAnfrage>` (data ready query, see [1], sect. 5.1.3.1) or via the `<StatusAntwort>` (`<DatenBereit>` = true) (status response, data ready = true). As a response to the positive `<DatenBereit>` (data ready) message, the client requests the new data by means of a `<DatenAbrufenAnfrage>` (data query).

Server side

Since multiple subscriptions can be set up within one `<AboAnfrage>` (subscription query) but just one general error message is provided for the entire `<AboAnfrage>` (subscription query) process, the following applies in the event of an error:

- To receive a (potential) error message per subscription, a subscription must be set up individually, i.e. one `<AboAnfrage>` (subscription query) per subscription.
- If an error occurs when setting up or deleting a subscription, the subscription will not be set up or deleted. The partner receives a corresponding error message, which describes the problem in detail.
- If multiple subscriptions are set or deleted within one `<AboAnfrage>` (subscription query) and an error occurs, the query as a whole will be rejected, i.e. no subscription in this query

will be created or deleted. In this case, the partner will receive an error message that refers to the subscription for which the first error occurred.

5.1.2.2. Subscription confirmation (*AboAntwort*)

(see VDV Guideline 453)

5.1.3. Providing data

(see VDV Guideline 453)

5.1.4. Calling up data

(see VDV Guideline 453)

5.1.4.1. Requesting a data transfer (*DatenAbrufenAnfrage*)

(see VDV Guideline 453)

5.1.4.2. Transferring data (*DatenAbrufenAntwort*)

(see VDV Guideline 453)

Subscription data can be divided across multiple packets using the *WeitereDaten* (more data) mechanism. The data supplier can decide whether it wants to use the *WeitereDaten* (more data) mechanism or not.

5.1.4.2.1. Handling *DatensatzAlle* (dataset all)

(see VDV Guideline 453)

The following elements represent the most granular units of data for the different services, which must be sent in full within a data packet:

Service	Granularity (smallest unit)
REF-ANS	ASBFahrplan
ANS	ASBFahrplanlage / ASBFahrtLoeschen / HaltepositionsAenderung / WartetBis / AbbringerFahrtLoeschen
REF-DFI	AZBFahrplan
DFI	AZBFahrplanlage / AZBFahrtLoeschen
REF-AUS	Linienfahrplan
AUS	IstFahrt

5.1.5. Deleting data subscriptions (AboLoeschen/Alle)

(see VDV Guideline 453)

5.1.6. Resetting after interruption

(see VDV Guideline 453)

5.1.7. Resetting after crash

(see VDV Guideline 453)

5.1.8. Alive handling

(see VDV Guideline 453)

5.1.8.1. Query (StatusAnfrage)

(see VDV Guideline 453)

5.1.8.2. Response (StatusAntwort, Status)

(see VDV Guideline 453)

Client side

If a client receives a “notok” back in the data element <Status> in the <StatusAntwort> (status reply) to a sent <StatusAnfrage> (status query), it must be assumed that the entire service is not available. From this point, the client is not allowed to send any more queries to the partner system except for the <StatusAnfragen> (status queries) that continue on a cyclical basis. As soon as the first “ok” is received in a <StatusAntwort> (status reply), the service in question is considered “available again” and regular data exchange can be resumed. The behaviour is no different from when absolutely no reply is received to a <StatusAnfrage> (status query).

5.1.8.3. ClientStatusAnfrage

(see VDV Guideline 453)

5.2. HTTP binding

5.2.1. Procedure

XML namespace: An explicit namespace (e.g. “vdv453ger”) is not used, pursuant to the official VDV Guideline 453.

XML header: The XML header must be completed as per HTTP specification RFC 2616.

5.2.2. Character set

(see VDV Guideline 453)

5.2.3. Service IDs

(see VDV Guideline 453)

5.2.4. Query URL

Since changes within a partner’s system environment, which also acts as a server, can also affect application addressing, it is a good idea to design the addressing of VDV queries to be configurable on the client side.

Changes to the URL of a service on the server side must be approved by the recipients.

Server side

The following messages are responded to or sent by a server:

Query ID	Responded to by server	Sent by server
status.xml	✓ StatusAntwort	✗
Clientstatus.xml	✗	✓ ClientStatusAnfrage
aboverwalten.xml	✓ AboAntwort	✗
datenbereit.xml	✗	✓ DatenBereitAnfrage
datenabrufen.xml	✓ DatenAbrufenAntwort	✗

Table 2: Service messages

Client side

The following messages are responded to or sent by the client:

Query ID	Responded to by client	Sent by client
status.xml	✗	✓ StatusAnfrage
Clientstatus.xml	✓ ClientStatusAntwort	✗
aboverwalten.xml	✗	✓ AboAnfrage
datenbereit.xml	✓ DatenBereitAntwort	✗
datenabrufen.xml	✗	✓ DatenAbrufenAnfrage

Table 3: Client messages

5.2.5. Error handling

(see VDV Guideline 453)

5.3. Security

Both sides are responsible for implementing protective measures (e.g. DMZ, firewall, etc.). Appropriate security components must be used here. The demilitarised zones (DMZs) of the public transport partners form the infrastructure for the setup of a VPN and the routing of HTTP requests. The level of security desired or required for the respective connection must be agreed upon bilaterally by the partners.

6. “Specialist services” interface description

6.1. General stipulations

The following sections describe the metadata required for data exchange and provide more detail for VDV Guideline 453 [1].

Metadata that is neither defined in this document nor in the official VDV Guideline must be agreed upon and defined by the relevant partners.

6.1.1. Operating days

The operating day for a journey defines its relationship to a specific date:

- The operating days **must** match the days on the period timetable (number of travel days).
- The operating day usually matches the date of departure for the journey at the start operating point according to the timetable.
- For journeys that start after midnight, the operating day may be the previous day.
- The timetable planner can assign a journey to one or the other day based on operational needs. There are no fixed rules in this case.
- A journey always retains its assigned operating day regardless of the duration of the journey.

6.1.2. Date and time format

(see VDV Guideline 453)

6.1.3. Control point ID

The control point ID is included in both the access URL and in the message itself in the form of the `Sender XML` attribute.

In addition to the **sender of the message** (system ID) it also identifies the respective **platform** from which a message is sent (platform ID). Both components are connected with a “_” (underscore sign) between them.

<Systemkennung>_<Plattformkennung>

It is recommended to specify the control point identifier in lowercase letters.

The system ID can be freely selected. The *underscore* sign “_” however must not be used within the system ID. It is a good idea to specify in the system ID the respective abbreviations for the partner and, if necessary, the abbreviation for the system designation (e.g. “sbb”, “aags”, “riv”, “zvv”, “zvb”, “svb-lio”, “svb-dss” etc.).

The platform from which data is exchanged is specified in the platform ID.

The following IDs are defined as standard:

Platform	Platform ID
Development	entw
Testing	test
Integration	int
Production	prod

Table 4: Platform IDs

If the platform IDs defined here are not sufficient, more IDs can be added with the agreement of both sides. Partners that operate fewer than the platforms listed here are limited to the ones they have available.

Valid control point IDs include, for example: “zvv_test”, “zvv_prod”, “riv_prod”, “sbb_int”, “sbb_prod”, “svb-dds_test”, “svb-dds_prod”.

6.1.4. Location references

Location identifiers

The location identifiers for the ANS and DFI services are based on the respective connection areas (ANS) and display areas (DFI) for which a subscription is set up.

Service	Location identifier	Key name
Ensuring connections	Connection area	ASBID
Dynamic passenger information	Display area	AZBID

Table 5: Location references in the specialist services

For technical reasons, different prefix codes are given to the subscription queries for individual services:

- a leading “**Z**” for the AZBID of the DFI service
- a leading “**S**” for the ASBID of the ANS service

In both cases, what follows is the two-digit UIC country code and the five-digit UIC code (without check digit) for specifying the stop in question. If there are multiple connection/display areas within a stop, an additional two-digit code can optionally be used in order to identify the precise connection/display area within the stop. If stops do not need to be broken down into more detail, the two-digit area code is not specified. The resulting code for the location reference is therefore usually eight digits, but can also be ten digits when more detail is provided.

The UIC country codes and UIC stop codes for location references also apply to bus stops, tram stops, etc. They are based on the Swiss-wide operating point list (master data in DiDok list [4]).

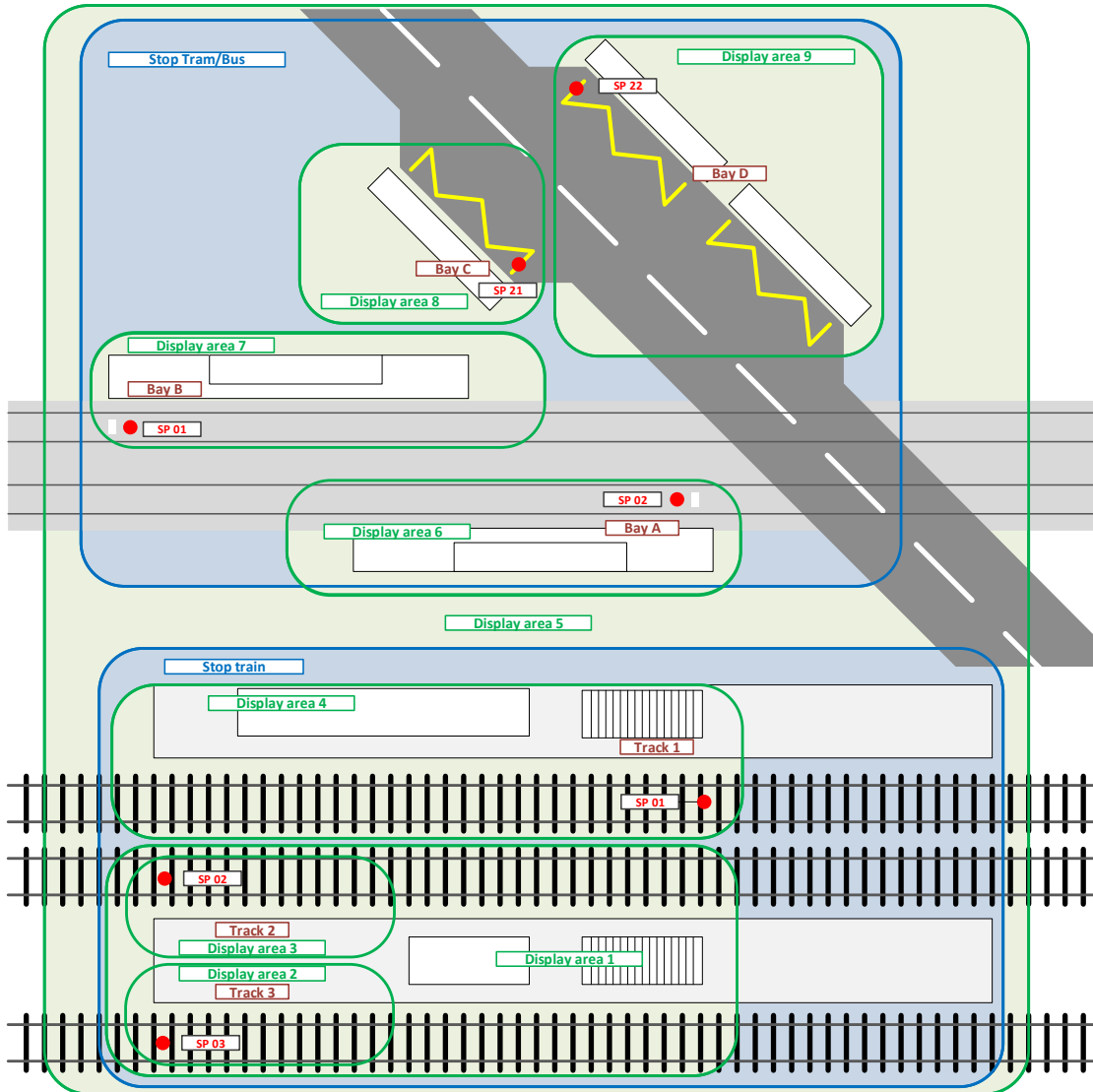
If one display/connection area has stopping points for multiple stops (different UIC stopping point codes), then the partners in question will agree on one UIC stopping point code. In this case it is a good idea to use the smaller UIC stopping point code each time.

Composition of the AZBID:

Z + UIC country code + UIC code+ (display area code)

Example for Zürich HB: Z8503000, Z850300001

Overview of display areas:



Key:

- SP = Stopping point (stop point/bay/mast)
Smallest unit in local public transport data model
- ST = Stop: Corresponds to one or more
(multiple operations use the same stop)
operating points from the (DiDok) stop list
- SP22 = Double bus stop, where two buses can stop one behind the other at the same time (modelled as just one stop)
- Track/ = Customer-relevant designation of the boarding area (track = number; bay = letter)
- Bay

Explanations of the map of display areas:

KIDS working group

(Kundeninformationsdaten-Schnittstellen im öV-Schweiz)

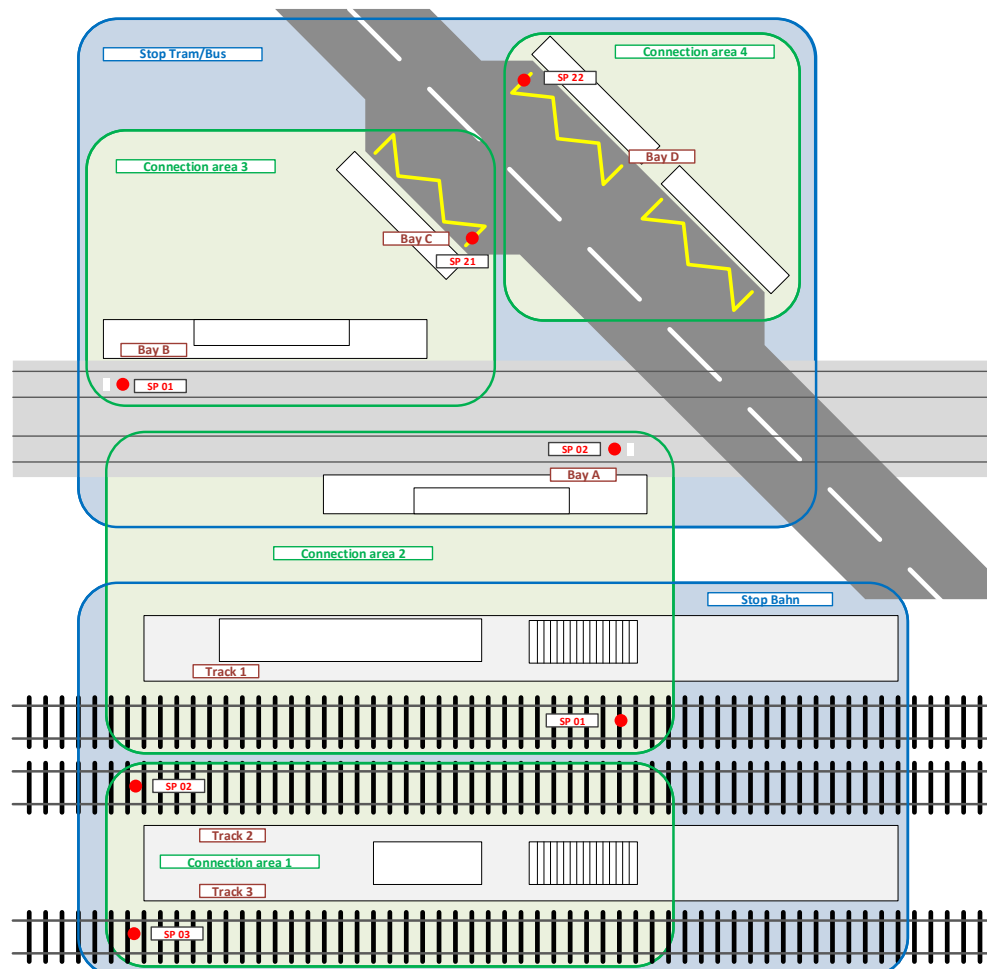
Display area 1:	Z850123401 (contains rail SP 02 and SP 03) Shows trains for tracks 2 and 3, including information on which track the train is travelling on.
Display area 2:	Z850123402 (contains rail SP 03) Shows trains for the corresponding track.
Display area 3:	Z850123403 (contains rail SP 02) Shows trains for the corresponding track.
Display area 4:	Z850123404 (contains rail SP 01) Shows trains for the corresponding track.
Display area 5:	Z850123405 (contains rail SP 01, SP 02 and SP 03 tram SP 01 and SP 02, and bus SP 21 and SP 22) Shows all trains, trams and buses for the two "Bahn" (Rail) and "Tram/Bus" stops, including track number or stop point letter.
Display area 6:	Z850567806 (contains tram SP 02) Shows trams for stop A.
Display area 7:	Z850567807 (contains tram SP 01) Shows trams for stop B.
Display area 8:	Z850567808 (contains bus SP 21) Shows buses for stop C.
Display area 9:	Z850567809 (contains bus SP 22) Shows buses for stop D.
Display area Rail stop:	Z8501234 (contains all Rail SPs) Shows trains for tracks 1, 2 and 3
Display area Tram/Bus stop:	Z8505678 (contains all Tram and Bus SPs) Shows trams and buses for stops A-D.

Composition of the ASBID:

S + UIC country code + UIC code+ (connection area code)

Example for Zürich HB: S8503000, S850300003

Overview of connection areas:



Key:

SP = Stopping point (stop point/bay/mast)

Smallest unit in local public transport data model

ST = Stop: Corresponds to one or more (multiple operations use the same stop operating points from the (DiDok) stop list

SP22 = Double bus stop, where two buses can stop one behind the other at the same time (modelled as just one stop)

Track = Customer-relevant designation of the boarding area (track = number;

Bay bay = letter)

Please note: connection area = is provided in some systems for the definition of walking times.

Explanations of the map of connection areas:

KIDS working group

(**K**unden**i**nformations**d**aten-**S**chnittstellen im öV-Schweiz)

Connection area 1:	S850123401 (contains rail SP 02 and SP 03)
Connection area 2:	S850123402 (contains rail SP 01 and tram SP 02)
Connection area 3:	S850567803 (contains tram SP 01 and bus SP 21)
Connection area 4:	S850567804 (contains SP 22)
Connection area Rail stop:	S8501234 (contains all Rail SPs)
Connection area Tram/Bus stop:	S8505678 (contains all tram/bus SPs)

6.1.5. Journey reference (FahrtID)

The <FahrtID> (journey ID) must be specified (applies to all VDV453 and VDV454 services) and is used to uniquely identify a transmitted journey and compare it to existing data on this journey.

The <FahrtID> (journey ID) elements consists of the two subelements <FahrtBezeichner> (journey identifier) and <Betriebstag> (operating day):

Element	Comments	Field
- FahrtBezeichner	Unique journey identifier (see below)	Mandatory
- Betriebstag	(see section 6.1.1)	Mandatory

Table 6: Structure of <FahrtID>

The <FahrtBezeichner> (journey identifier) is mandatory, must be expressed in the format described below and must always be unique within an operating day:

FahrtBezeichner = [UIC country code]:[Business organisation number]:[Journey reference]

Identifier	Meaning	Example
UIC country code	Country code of the transport company (as per UIC) operating the journey. Numeric value with max. 2 digits	85

Identifier	Meaning	Example
Business organisation number	<p>Number of the business organisation of a transport company operating the journey, as per the FOT DiDok list [4] or reference for the country in question. (Synonym: transport company code.)</p> <p>Number should not start with a leading zero.</p> <p>Max. six-character alphanumerical value (permissible characters are { A-Z, a-z, 0-9, _ }).</p> <p>The business organisation number must be identical in the FahrtBezeichner (journey identifier) and LinienID (line ID) elements. If the numbers are different, the journey may not be able to be processed (inconsistencies).</p>	37
Journey reference	<p>Open key that can be defined by the data producer or planning transport company itself in order to ensure that a journey is unique.</p> <p>The journey reference must be unique within the business organisation of a transport company (business organisation number) and must refer to one journey per <Betriebstag> (operating day).</p> <p>Max. 50-character, alphanumerical value permitted. Permissible characters are { A-Z, a-z, 0-9, _ , - }.</p> <p>Note: The colon : is a special separator and is therefore explicitly <u>not</u> permitted in this field (except for rail transport).</p>	6624325-234-001_A
	<p><u>Composition of FahrtReferenz (journey reference) for rail transport</u></p> <p>For compatibility reasons the following format is used in rail transport for the “journey reference” field:</p> <p>FahrtReferenz = [Transport journey number]:[Extended reference]</p> <p>Permissible characters are { A-Z, a-z, 0-9, _ , - }.</p> <p>Note: The colon : is a special separator and is therefore explicitly <u>only</u> permitted in this field at the point defined above (exclusively for rail transport).</p>	63003:001
	<p>Transport journey number</p> <p>This must be unique within the business organisation of a transport company (business organisation number) for one operating day. Multiple journeys within one day must be identified by different transport journey numbers.</p> <p>Max. five-character numerical value permitted.</p>	63003

Identifier	Meaning	Example
	<p>Extended reference</p> <p>Alphanumerical technical key that can be defined by the planning transport company itself in order to ensure that a journey is unique. This value is also used for identification if the journey cannot be made unique using the key elements described above alone.</p> <p>If this key is not used for differentiation, the placeholder “000” must be used.</p> <p>Permissible characters are { A-Z, a-z, 0-9, _ , - }.</p>	001

Table 7: Components of <FahrtID>

The FahrtBezeichner (journey identifier) must match in the VDV453/454 services.

Examples of a correctly formatted FahrtBezeichner (journey identifier):

SBB: “85:11:21814:001”

NAV: “85:846:241291-00319-1”

International: “80:678:439244-DR24-434-223_01”

Example for FahrtID:

```
<FahrtID>
  <FahrtBezeichner>85:11:21814:001</FahrtBezeichner>
  <Betriebstag>2012-05-14+02:00</Betriebstag>
</FahrtID>
```

6.1.6. Line and direction references

6.1.6.1. Line reference (addition for VDV-RV 453)

LinienID (line ID):

The <LinienID> (line ID) is a purely technical key not used on the customer display.

Format in the Swiss public transport system (except rail transport):

In the Swiss public transport system (except rail transport), the LinienID (line ID) must be provided in the following format for all VDV453 and VDV454 services:

[UIC country code]:[Business organisation number]:[Technical line key]

Identifier	Meaning	Example
UIC country code	Country code of the transport company (as per UIC) operating the journey. Numeric value with max. 2 digits	85
Business organisation number	Number of the business organisation of a transport company operating the journey, as per the FOT DiDok list [4] [4] or reference for the country in question. (Synonym: transport company code.) Number should not start with a leading zero. Max. six-character alphanumerical value (permissible characters are { A-Z, a-z, 0-9, _ }). The business organisation number must be identical in the FahrtBezeichner (journey identifier) and LinienID (line ID) elements. If the numbers are different, the journey may not be able to be processed (inconsistencies).	37
Technical line key	Technical key for the line. The line key must be unique within the business organisation number. Alphanumerical number (permissible characters are {A-Z, a-z, 0-9, _ }).	1250_2

Please note: With the format described above, the LinienID (line ID) itself is uniquely defined in the Swiss public transport system across countries and business organisations.

Recommendation: The KIDS working group recommends using a unique LinienID (line ID) based on the above format when transmitting the period timetable (e.g. HRDF), the day target timetables (REF-AUS) and also when transmitting changes during a day (AUS).

The aim is to be able to avoid LinienID (line ID) mappings in the information systems in future.

In the Hafas raw data format (HRDF), HaCon explicitly stipulates the use of the LinienID (line ID) in the line key for this purpose from format version 5.40.0.

Example for specifying the LinienID (line ID) in VDV454 and HRDF (from 5.40.0):

VDV454	HRDF (from version 5.40.0)
LinienID= "85:827:2"	Line key= "1234567K85:827:2"

Comment on migration path: During transition the LinienID (line ID) may still be operated in accordance with existing metadata agreements in terms of VDV453 services. The format of the LinienID (line ID) should be converted in the VDV453 service by the transport company within a reasonable amount of time. When the VDV454 services are used at the latest, the LinienID (line ID) must be transmitted identically in the format defined above for all services used.

Format of LinienID (line ID) in rail transport:

In rail transport, the LinienID (line ID) is handled differently for the VDV453 and VDV454 services until further notice. In the VDV453 services the metadata agreed upon between the partners is

transferred. In the VDV454 services the transport journey number for the journey in question is transmitted in the <LinienID> (line ID) element.

LinienText (line text):

The <LinienText> (line text) element is customer-relevant and must therefore be forwarded to the respective display systems.

6.1.6.2. Direction reference (addition for VDV-RV 453)

The <RichtungsID> (direction ID) defines the direction of a journey. This can change from operating point to operating point during the journey³. The <RichtungsID> (direction ID) can therefore vary from stop to stop for a journey. It is recommended to use a RichtungsID (direction ID) that is meaningful and easy for human observers to interpret.⁴

6.1.7. Product types

(see VDV Guideline 453)

The transport category is communicated as the <ProduktID> (product ID) in the Swiss public transport system.

When specifying the <ProduktID> (product ID), the data-producing transport company must ensure that the transmitted transport categories match the transport categories used in the timetable collection in the Swiss public transport system (INFO+).

Notes

- Specifying the ProduktID (product ID) is partly used for the assignment of pictograms in the information systems.
- The current transport categories can be found on the home page of Alliance Swiss Pass [5]. These must be adhered to across the Swiss public transport system whenever possible.
- Nonetheless the values for the transport category may change at short notice and sometimes even without any notice. Recipient systems should therefore be able to respond rapidly to such changes and must not discard data with unknown transport categories.

6.1.8. Diversions

(see VDV Guideline 453)

6.1.9. Service attributes

Attributes and notes (see [5]) are transmitted via service attributes. The following values are defined in the Swiss public transport system:

³ While the RichtungsID (direction ID) remains constant for a journey in linear local transport, it may change multiple times during the journey in rail transport.

The RichtungsID (direction ID) is not intended for passenger information. However, it should have a structure that is meaningful and easy for human observers to interpret. This makes it easier to understand the metadata and analyse log files.

⁴ Among other things, this makes it easier to understand the metadata and analyse log files.

Name of service attribute	Meaning of value	Comment
NF	Low floor	Phase 3, implementation between interested partners
PH	No low floor	Phase 3, implementation between interested partners
(... to be defined by INFO+)	Autonomous and spontaneous access for manual and electric wheelchairs.	Phase 3, implementation between interested partners
(... to be defined by INFO+)	Access for manual and electric wheelchairs with advance notice	Phase 3, implementation between interested partners
(... to be defined by INFO+)	Limited access for manual and electric wheelchairs	Phase 3, implementation between interested partners
(... to be defined by INFO+)	No access for manual and electric wheelchairs.	Phase 3, implementation between interested partners
Z	With surcharge	Phase 3, implementation between interested partners
TX	Taxi	Phase 3, implementation between interested partners
TT	Tilting technology	Phase 3, implementation between interested partners

Clarification: Service attributes NF and PH are to be considered independent, so that no NF does not automatically mean a high floor.

Service attribute value	Meaning	Comment
NF exists	Low floor	
NF missing	No information concerning low floor	Does not mean high floor
PH exists	High floor	
PH missing	No information concerning high floor	Does not mean low floor

6.1.10. Error in technical shift

(see VDV Guideline 453)

6.1.11. Optional fields

(see VDV Guideline 453)

6.1.12. Text for publication

(see VDV Guideline 453)

6.1.13. Latency and processing analysis using the protocol entry element

(see VDV Guideline 453)

The Protokolleintrag (protocol entry) does not need to be sent, evaluated, added or forwarded in the Swiss public transport system. However, if this is received, a XSD validation error must never be triggered.

6.1.14. Stop information (addition for VDV-RV 453)

6.1.14.1. HaltepositionsText

The `<HaltepositionsText>` (stopping position text) element describes the transport stop used by a means of transport in a display-ready form. The content of this field is therefore publication-relevant (vehicle's interior display, general monitor etc.)

The official stop designation (e.g. "A" for the bus stop of the same name or "12" for the corresponding track) should be transmitted if available. If the departure location cannot be uniquely identified, the field is not transmitted.

Implementation instruction:

The text length for fields is limited to five characters in the Swiss public transport system.

The value is interpreted as follows if the element is filled:

- Value without spaces:
 - ➔ The value is adopted as the actual track or actual stop.
- Value with spaces:
 - ➔ Values with spaces are permitted only for trains.
 - ➔ The space is interpreted as a separator between the actual track and the actual sector. The text before the space will be interpreted as the track; the text after the space as the sector (e.g. "12 A" refers to track 12 and sector A).

If tracks and/or sectors are transmitted together with HaltepositionsText (stopping position text), the tracks and/or sectors have a higher priority. If HaltepositionsText (stopping position text) is missing, AbfahrtssteigText and AbfahrtsSektorenText must be converted to HaltepositionsText (stopping position text) when converting to the older XSD version. When converting from an older XSD version, there is no conversion from HaltepositionsText (stopping position text) to SteigText (bay text) and/or SektorenText (sector text).

6.1.14.1.1. Bays and sectors

Bays (AnkunftssteigText, AbfahrtssteigText): (addition for VDV-RV 454)

For rail travel, the "Steig" corresponds to the track identifier, without the sector. This is normally a number.

Sectors (AnkunftsSektorenText, AbfahrtsSektorenText): (VDV-RV 454 addition)

The following format must be observed in rail travel:

Sectors are specified in the following format to save space:

- Letters A to Z, max. three-characters without spaces (e.g. “ABC”)
- For more than three letters, describe as a range with a hyphen (e.g. “A-D”, corresponds to “ABCD”)

This is to be ensured by the source systems (INFO+, CUS, VDV supplier partners etc.).

Sectors only have to be transmitted if the stopping point deviates from the usual location (e.g. two trains at the same platform).

6.1.14.2. HaltID

(see VDV Guideline 453) The <HaltID> (stop ID) element describes the stop, and optionally the stopping point to which a vehicle runs.

Format:

The KIDS committee aims to use unique Swiss-wide HaltID (stop IDs) in the Swiss public transport system. The HaltID (stop ID) should be specified in as much detail as possible, if available, and should be treated the same in the application of Guidelines VDV453 and VDV454. It should be structured as described in the following:

- unique Swiss-wide two-digit UIC country code
- five-digit UIC code (without check digit) for specifying the stop in question (global stop range)
- (optional) two-digit code for identifying the stopping point within the stop.

If there are multiple stopping points within a stop, the code used to identify and differentiate the precise position can be used. If stops do not need to be broken down into more detail and the stopping position corresponds to the stop itself, the two-digit stopping point code does not have to be specified. The resulting code for the <HaltID> (stop ID) is therefore usually seven digits (HaltID (stop ID) corresponds to the global stop), but can also be nine digits when more detail is provided (HaltID (stop ID) corresponds to a specific stop-ping point).

Composition of <HaltID>:

UIC country code + UIC code+ (stopping point code)

Example for Zürich HB:8503000, 850300002

The UIC country codes and UIC stop code for identifying the stop also apply to bus stops, tram stops, etc. They are based on the Swiss-wide operating point list (as per FOT DiDok list [4]).

6.1.14.3. Durchfahrt (non-stopping pass)

The Durchfahrt (non-stopping pass) element must be interpreted.

The Durchfahrt (non-stopping pass) element does not appear in older XSD versions. When converting to an old XSD version, a xxxFahrtLoeschen (delete journey) element with Ursache=Durchfahrt (cause=non-stopping pass) is also triggered as well as a xxxFahrplanlage (timetable situation) element. When converting from an older XSD version, it is not possible to generate the Durchfahrt (non-stopping pass) element. It is not set.

6.1.14.4. Einsteigeverbot (no boarding)

The Einsteigeverbot (no boarding) element must be interpreted. The arrival and departure times are provided. The Einsteigeverbot (no boarding) element does not appear in older XSD versions. When converting to an old XSD version, AbfahrtszeitAZBPlan and AbfahrtszeitAZBPrognose are omitted. When converting from an older XSD version, it is not possible to generate the Einsteigeverbot (no boarding) element. It is not set.

6.1.14.5. Aussteigeverbot (no alighting)

The Aussteigeverbot (no alighting) element must be interpreted. The arrival and departure times are provided. The Aussteigeverbot (no alighting) element does not appear in older XSD versions. When converting to an older XSD version, the Ankunftszeit (arrival time) is omitted. When converting from an older XSD version, it is not possible to generate the Aussteigeverbot (no alighting) element. It is not set.

6.1.15. Arrival information (AufASB/AufAZB) (addition for VDV-RV 453)

The two elements `<AufASB>` and `<AufAZB>` are used within a timetable system to indicate for the service in question whether a means of transport has reached the operating point in question or if it is highly likely to reach it at the stated time:

- `<AufAZB>`: In the DFI service, if this field is `true`, this means that the means of transport is waiting at the operating point (i.e. passengers can board) at the specified predicted time (`<AnkunftszeitAZBPrognose>`).
- `<AufASB>`: In the ANS service, if this field is `true` this means that the means of transport has reached the operating point (i.e. passengers can disembark) at the specified predicted time (`<AnkunftszeitASBPrognose>`).

The arrival (value = true) of a journey must be transmitted consistently and reliably in order to ensure correct displays (customer information) and functional connections.

For the `<AufASB>` and `<AufAZB>` elements the default value is set to `false`. A missing `<AufASB>` or `<AufAZB>` element therefore indicates that the means of transport has not reached the operating point yet.

The elements are set to `true` as soon as the arrival prediction for the means of transport can be interpreted as the effective arrival time at the operating point (technically this element is set to `true` by SBB, for example, as soon as the referenced means of transport passes the home signal at the operating point in question). In this case the arrival prediction is the anticipated ACTUAL arrival time.

6.2. Ensuring connections (REF-ANS, ANS)

(see VDV Guideline 453)

6.2.1. Introduction

(see VDV Guideline 453)

6.2.2. Operational data supply and maintenance

(see VDV Guideline 453)

6.2.3. Reference data service (REF-ANS)

(see VDV Guideline 453)

6.2.3.1. Data exchange

(see VDV Guideline 453)

6.2.3.2. Querying area timetables (AboASBRef)

(see VDV Guideline 453)

6.2.3.3. Transmitting area timetables (ASBFahrplan)

(see VDV Guideline 453)

6.2.3.3.1. Additional information on the journey (FahrtInfo)

(see VDV Guideline 453)

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
ProduktID	see VDV Guideline 453	Mandatory
BetreiberID	see VDV Guideline 453 Comment: "An operator can deliver either rail or local transport data with a BetreiberID (operator ID). If an operator needs to deliver both rail and local transport data, this must be delivered with a different BetreiberID (operator ID) even if both use the same line."	Mandatory

Table 8: Structure of <FahrtInfo>

6.2.3.3.2. Information on direct communication (Direktruf)

(see VDV Guideline 453)

6.2.4. Process data service (ANS)

6.2.4.1. Data exchange

(see VDV Guideline 453)

6.2.4.1.1. Update/delay

(see VDV Guideline 453)

For application in the Swiss public transport system, a standard value of 30 seconds has been defined for the delay for all systems. If a subscription contains a different value, the server is nevertheless entitled to process the subscription with a delay of 30 seconds.

6.2.4.1.2. Preview time

(see VDV Guideline 453)

6.2.4.2. Subscribing to connection data (*AboASB*)

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
ASBID	AnschlussbereichsID (connection area ID) (e.g. S8506016 for operating point Oberwinterthur) See section 6.1.4	Mandatory

Table 9: Structure of AboAnfrage (subscription query) with <AboASB>

6.2.4.2.1. Journey-related data (*Fahrtfilter* (journey filter))

(see VDV Guideline 453)

6.2.4.2.2. Time-related data (*Zeitfilter* (time filter))

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
LinienID	If the LinienID (line ID) is omitted, all lines for this operating point are subscribed. See section 6.1.6	Optional

Recommendation: The <SpaetesteAnkunftszeit> (latest arrival time) element should occur after the subscription time up to max. 24 hours in the future. The value for the <FruehesteAnkunftszeit> (earliest arrival time) element can be any value in the past.

Formula: <SpaetesteAnkunftszeit> - subscription time =< 24

Example:

In the following example supplier data for journeys on line 2, direction “train station”, is subscribed for a journey (IT CS A) coming into a connection area. The only data which will be sent is that which relates to vehicles which, according to the current forecast, will reach the connection area between 15:50 and 16:10.

```
<AboAnfrage Sender="ITCSa_prod" Zst="2014-04-08T15:45:00">
  <AboASB AboID="25" VerfallZst="2014-04-08T16:10:00">
    <ASBID>S8506016</ASBID>
    <ZeitFilter>
      <LinienID>S12</LinienID>
      <RichtungsID>W-OWT</RichtungsID>
      <FruehesteAnkunftszeit>
        2014-04-08T15:50:00
      </FruehesteAnkunftszeit>
      <SpaetesteAnkunftszeit>
        2014-04-08T16:10:00
      </SpaetesteAnkunftszeit>
    </ZeitFilter>
    <Hysterese>30</Hysterese>
  </AboASB>
</AboAnfrage>
```

6.2.4.2.3. Additional information on connectors (*AbbringerInfo*) (connector info)
(see VDV Guideline 453)

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
FahrtInfo	see VDV Guideline 453 See section 6.2.3.3.1	Mandatory
AbfahrtssteigText	as in VDV Guideline 453 See section 6.1.14.1	Optional
HaltepositionsText	Customer-relevant stop (track) for a means of transport. See section 6.1.14.1	Optional
AbfahrtsSektorenText	as in VDV Guideline 453 See section 6.1.14.1	Optional

Table 10: Structure of <AbbringerInfo>

6.2.4.3. Feeder messages (*Zubringernachricht*)
(see VDV Guideline 453)

6.2.4.3.1. Transmitting connection data (*ASBFahrplanlage*)
(see VDV Guideline 453)

The stipulations of VDV Guideline 453 generally apply to the sending of <ASBFahrplanlage> elements.

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
ASBID	AnschlussbereichsID (connection area ID) (e.g. S8506016 for operating point Oberwinterthur) See section 6.1.4	Mandatory
FahrtID	See section 6.1.5	Mandatory
LinienID	Metadata, exclusively used for subscription. See section 6.1.6	Mandatory
LinienText	Customer-relevant line name or train category, displayed as line name for a means of transport. See section 6.1.6.	Mandatory
RichtungsID	Metadata, exclusively used for subscription. See section 6.1.6	Mandatory
RichtungsText	Customer-relevant destination. See section 6.1.6.	Mandatory
VonRichtungsText	Customer-relevant origin of transport. See section 6.1.6	Optional
AufASB	Arrival information (default = false). See section 6.1.15	Optional
HaltID	Technical ID for a stop (track). See section 6.1.14.2	Optional
AnkunftssteigText	as in VDV Guideline 453 See section 6.1.14.1	Optional

Element	Comments	Field
HaltepositionsText	Customer-relevant stop (track) for a means of transport. See section 6.1.14.1	Optional
AnkunftsSektorenText	as in VDV Guideline 453 See section 6.1.14.1	Optional
FahrtInfo	see VDV Guideline 453 See section 6.2.3.3.1	Mandatory

Table 11: Structure of <ASBFahrplanlagen>

6.2.4.3.2. Feeder cancellation (*ASBFahrtLoeschen*) (see VDV Guideline 453)

The reasons why a journey might be deleted are specified in [1]. Otherwise the same restrictions and special considerations as for transmitting the <ASBFahrplanlage> apply in principle.

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
ASBID	AnschlussbereichsID (connection area ID) (e.g. S8506016 for operating point Oberwinterthur) See section 6.1.4	Mandatory
FahrtID	See section 6.1.5	Mandatory
LinienID	See section 6.1.6	Mandatory
LinienText	Customer-relevant line name or train category, displayed as line name for a means of transport. See section 6.1.6	Mandatory
RichtungsID	See section 6.1.6	Mandatory
RichtungsText	Customer-relevant destination. See section 6.1.6	Mandatory
HaltID	Technical ID for a stop (track). See section 6.1.14.2	Optional
HaltepositionsText	Customer-relevant stop (track) for a means of transport. See section 6.1.14.1	Optional
FahrtInfo	see VDV Guideline 453 See section 6.2.3.3.1	Mandatory

Table 12: Structure of <ASBFahrtLoeschen>

6.2.4.4. Connector messages (*Abbringernachricht*) (see VDV Guideline 453)

6.3. Dynamic passenger information (REF-DFI, DFI)

6.3.1. Introduction

(see VDV Guideline 453)

6.3.2. Operational data supply and maintenance

(see VDV Guideline 453)

6.3.3. DFI systems with key control

(see VDV Guideline 453)

6.3.4. DFI systems with autonomous prediction display

(see VDV Guideline 453)

6.3.5. Sharp deletion

(see VDV Guideline 453)

6.3.6. Traction / through carriages / dividing journeys

(see VDV Guideline 453)

6.3.7. Reference data service (REF-DFI)

(see VDV Guideline 453)

6.3.8. Process data service (DFI)

(see VDV Guideline 453)

6.3.8.1. Data exchange

(see VDV Guideline 453)

6.3.8.2. Querying DFI data (*AboAZB*)

(see VDV Guideline 453)

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
AZBID	AnzeigerbereichsID (display area ID) (e.g. Z8506016 for operating point Oberwinterthur) See section 6.1.4	Mandatory
LinienID	If the LinienID (line ID) is omitted, all lines are subscribed to from this operating point. See section 6.1.6.	Optional
RichtungID	If the RichtungID is omitted, all directions are subscribed to from this operating point. See section 6.1.6.2.	Optional

Table 13: Structure of AboAnfrage with <AboAZB>

6.3.8.3. Display user messages (*AZBNachricht*)

(see VDV Guideline 453)

6.3.8.3.1. Transmitting prediction data (*AZBFahrplanlage*)

(see VDV Guideline 453)

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
AZBID	AnzeigerbereichsID (display area ID) (e.g. Z8506016 for operating point Oberwinterthur) See section 6.1.4	Mandatory

Element	Comments	Field
FahrtID	See section 6.1.5.	Mandatory
LinienID	Metadata, exclusively used for subscription. See section 6.1.6	Mandatory
LinienText	Customer-relevant line name or train category, displayed as line name for a means of transport. See section 6.1.6.	Mandatory
RichtungsID	Metadata – not for customer display. See section 6.1.6.	Mandatory
RichtungsText	Customer-relevant destination. See section 6.1.6.	Mandatory
VonRichtungsText	Customer-relevant origin of transport. See section 6.1.6.	Optional
ZielHst	Operational destination as operational abbreviation as per DiDok (e.g. ZUE for Zürich HB, BN for Bern, LS for Lausanne, etc.).	Mandatory
AufAZB	Arrival information. See section 6.1.15.	Optional
AnkunftszeitAZBPlan, AbfahrtszeitAZBPlan	Planning times. See [1] sect. 6.3.8.3.1..	Optional
AnkunftszeitAZBPrognose, AbfahrtszeitAZBPrognose	See [1] section 6.3.8.3.1 Predicted times based on current position of vehicle. (Deployment not taken into account)	Optional
AbfahrtszeitAZBDisposition	For transmitting the time effects based on a deployment decision. As soon as deployment is lifted, the element is no longer set.	Optional
HaltID	Technical ID for a stop. See section 6.1.14.2.	Optional
AnkunftssteigText	as in VDV Guideline 453 See section 6.1.14.1	Optional
AbfahrtssteigText	as in VDV Guideline 453 See section 6.1.14.1	Optional
HaltepositionsText	Customer-relevant stop for a means of transport. See section 6.1.14.1	Optional
AnkunftsSektorenText	as in VDV Guideline 453 See section 6.1.14.1	Optional
AbfahrtsSektorenText	as in VDV Guideline 453 See section 6.1.14.1	Optional
FahrtInfo	see VDV Guideline 453 See section 6.2.3.3.1	Mandatory
Einsteigeverbot	as in VDV Guideline 453 See section 6.1.14.4	Optional
Aussteigeverbot	as in VDV Guideline 453 See section 6.1.14.5	Optional
Durchfahrt	as in VDV Guideline 453 See section 6.1.14.3	Optional

Table 14: Structure of <AZBFahrplanlage>

Implementation instruction:

The new elements `AnkunftFaelltAus` (arrival cancelled) and `AbfahrtFaelltAus` (departure cancelled) must be received, evaluated and forwarded. If both elements are set as true, a `AZBFahrtLoeschen` element should be triggered with `Ursache=Ausfall` (cause=cancellation) when converting to an older XSD version. When converting from an older XSD version, it is not possible to generate the elements `AnkunftFaelltAus` (arrival cancelled) and `AbfahrtFaelltAus` (departure cancelled). They are not set.

Explanation for `<AbfahrtszeitAZBDisposition>`

Cf. VDV Guideline 453, sect. 6.3.8.3.1 Transmitting prediction data (*AZBFahrplanlage*) [1]

Expression	Meaning
<code><AbfahrtszeitAZBDisposition></code> missing	1) No scheduling intervention has occurred or 2.) A deployment measure that was sent previously has been reset.
<code><AbfahrtszeitAZBDisposition></code> set with specific value	Deployment measure; journey is being held intentionally

Table 15: Explanation for `<AbfahrtszeitAZBDisposition>`

6.3.8.3.2. Traction in network (*Traktion*)

(see VDV Guideline 453)

6.3.8.3.3. Transmitting special line text (*AZBLinienSpezialtext*)

(see VDV Guideline 453)

6.3.8.3.4. Deleting special line text (*AZBLinienSpezialtextLoeschen*)

(see VDV Guideline 453)

6.3.8.3.5. Transmitting special text (Sondertext) (*AZBSondertext*)

(see VDV Guideline 453)

In the Swiss public transport system, `AZBSondertext` does not need to be sent, evaluated or forwarded. If a `AZBSondertext` is received, an XSD validation error must never be triggered.

6.3.8.3.6. Deleting special text (Sondertext) (*AZBSondertextLoeschen*)

(see VDV Guideline 453)

In the Swiss public transport system, `AZBSondertextLoeschen` does not need to be sent, evaluated or forwarded. If a `AZBSondertextLoeschen` is received, an XSD validation error must never be triggered.

6.3.8.3.7. Journey cancellation/departure (*AZBFahrtLoeschen*)

(see VDV Guideline 453)

`<AZBFahrtLoeschen>` is used in VDV Guideline 453 to delete a journey from the display if it leaves the display area (operating point) or is cancelled at this operating point (full or partial cancellation of a journey).

The deviations or clarifications regarding VDV Guideline 453 are:

Element	Comments	Field
AZBID	AnzeigerbereichsID (display area ID) (e.g. Z8506016 for operating point Oberwinterthur) See section 6.1.4	Mandatory
FahrtID	See section 6.1.5.	Mandatory
LinienID	Metadata, exclusively used for subscription. See section 6.1.6	Mandatory
LinienText	Customer-relevant line name or train category, displayed as line name for a means of transport. See section 6.1.6.	Mandatory
RichtungsID	Metadata – not for customer display. See section 6.1.6	Mandatory
RichtungsText	Customer-relevant destination. See section 6.1.6	Mandatory
HaltepositionsText	Customer-relevant stop (track) for a means of transport. See section 6.1.14.1	Optional
FahrtInfo	as in VDV Guideline 453 See section 6.2.3.3.1	Mandatory

Table 16: Structure of <AZBFahrtLoeschen>

6.4. Visualisation of external vehicles (VIS)

(see VDV Guideline 453)

6.5. General messaging service (AND)

(see VDV Guideline 453)

7. Glossary

AND	General messaging service: VDV specification for the exchange of operational information between employees of the transport company control points involved.
ANS	Ensuring connections: VDV specification for data exchange between transport companies with the aim of mutual assurance of connections between feeding and connecting means of transport.
ASB	Connection area
AZB	Display area
BP	Operating point (train station, stop)
DFI	Dynamic passenger information: VDV specification for data exchange between transport companies with the aim of displaying external journeys at their own shared stops.
DIDOK	“Service point documentation”: SBB master system for managing the master data of all service points of SBB, the international union of railways (UIC) and the Swiss public transport system. DIDOK governs the unique naming conventions in accordance with FOT regulations and in agreement with customer wishes.
ITCS	Intermodal Transport Control System.
KTU / TU	(Licensed) transport companies.
RBL	“Computer-aided control system” -> this term was replaced by ITCS and is no longer used.
VDV	German Association of Transport Companies
VM	Transport; synonym for all means of transport relevant to customer information (e.g. train, bus, tram, boat, funicular, etc.).

8. References

(see VDV Guideline 453)

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9. English alias identifiers

(see VDV Guideline 453)