

IBIS-IP Beschreibung der Dienste / Service description

Gemeinsame Datenstrukturen und Aufzählungstypen /
Common Data Structures and Enumerations
V2.0

Gesamtbearbeitung

Ausschuss für Telematik und Informationssysteme (ATI)

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IBIS-IP Beschreibung der Dienste / Service description

Gemeinsame Datenstrukturen und Aufzählungstypen / Common Data Structures and Enumerations V2.0

Gesamtbearbeitung

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Vorwort

Diese VDV-Schrift wurde aus der VDV-301-2 separiert, um Anpassungen an einzelnen IBIS-IP-Diensten unabhängig von anderen IBIS-IP-Diensten vornehmen zu können.

In der VDV-301-2 werden die technischen Grundlagen wie auch die Basisdienste, welche die Grundlagen eines IBIS-IP-Systems bilden, beschrieben.

Die VDV-Schrift 301-2-1 beschreibt die gemeinsamen Datenstrukturen und Aufzählungstypen.

Foreword

This VDV-requirement document has been separated from the VDV-301-2 in order to make adjustments to individual IBIS IP services independent from other IBIS IP services.

The technical basics as well as the basic services of the IBIS-IP systems are described in the VDV-301-2.

The VDV 301-2-1 describes the common data structures and enumerations.

Inhaltsverzeichnis / Content

Vorwort		4
<hr/>		
Foreword		4
<hr/>		
1	IBIS-IP datatypes	9
1.1	IBIS-IP.anyURI	9
1.2	IBIS-IP.boolean	9
1.3	IBIS-IP.byte	9
1.4	IBIS-IP.date	9
1.5	IBIS-IP.dateTime	10
1.6	IBIS-IP.double	10
1.7	IBIS-IP.duration	10
1.8	IBIS-IP.int	10
1.9	IBIS-IP.language	11
1.10	IBIS-IP.NMTOKEN	11
1.11	IBIS-IP.nonNegativeInteger	11
1.12	IBIS-IP.normalizedString	11
1.13	IBIS-IP.string	12
1.14	IBIS-IP.time	12
1.15	IBIS-IP.unsignedInt	12
1.16	IBIS-IP.unsignedLong	12
1.17	InternationalTextType	13
<hr/>		
2	Common data structure	14
2.1	AdditionalAnnouncement	14
2.2	Announcement	14
2.3	BayArea	14
2.4	BeaconPoint	15
2.5	CardApplInformation	15
2.6	CardTicketData	15
2.7	CardType	15
2.8	Connection	16
2.9	DataAcceptedResponse	16
2.10	DataAcceptedResponseData	16
2.11	DataVersion	16
2.12	DataVersionList	17
2.13	Destination	17
2.14	DeviceInformation	17

2.15	DeviceSpecification	18
2.16	DeviceSpecificationList	18
2.17	DeviceSpecificationWithState	18
2.18	DeviceSpecificationWithStateList	18
2.19	DisplayContent	19
2.20	DoorCounting	19
2.21	DoorCountingList	19
2.22	DoorInformation	20
2.23	DoorOpenState	20
2.24	DoorOperationState	20
2.25	DoorState	20
2.26	FareZoneInformation	21
2.27	GlobalCardStatus	21
2.28	GNSSPoint	21
2.29	GNSSCoordinate	21
2.30	JourneyStopInformation	22
2.31	LineInformation	22
2.32	LogMessage	22
2.33	Message	23
2.34	Point	23
2.35	PointSequence	23
2.36	PointType	23
2.37	ServiceIdentification	23
2.38	ServiceIdentificationWithState	24
2.39	ServiceIdentificationWithStateList	24
2.40	ServiceInformation	24
2.41	ServiceInformationList	24
2.42	ServiceSpecification	25
2.43	ServiceSpecificationWithState	25
2.44	ServiceSpecificationWithStateList	25
2.45	ServiceStart	25
2.46	ServiceStartList	26
2.47	ShortTripStop	26
2.48	ShortTripStopList	26
2.49	SpecificPoint	26
2.50	StopInformation	27
2.51	StopInformationRequest	27
2.52	StopPointTariffInformation	28
2.53	StopSequence	28
2.54	SubscribeRequest	28
2.55	SubscribeResponse	28

2.56	TimingPoint	28
2.57	TripInformation	29
2.58	TripSequence	29
2.59	TSPPoint	29
2.60	UnsubscribeRequest	30
2.61	UnsubscribeResponse	30
2.62	Vehicle	30
2.63	ViaPoint	30
2.64	ZoneType	31

3	Common enumerations	32
----------	----------------------------	-----------

3.1	ConnectionStateEnumeration	32
3.2	ConnectionTypeEnumeration	32
3.3	DataIntervalEnumeration	32
3.4	DeviceClassEnumeration	32
3.5	DeviceStateEnumeration	33
3.6	DeviceTaskEnumeration	33
3.7	DoorCountingObjectClassEnumeration	33
3.8	DoorCountingQualityEnumeration	33
3.9	DoorOpenStateEnumeration	33
3.10	DoorOperationStateEnumeration	34
3.11	ErrorCodeEnumeration	34
3.12	ExitSideEnumeration	34
3.13	GNSSCoordinateSystemEnumeration	34
3.14	GNSSQualityEnumeration	35
3.15	GNSSTypeEnumeration	35
3.16	JourneyModeEnumeration	35
3.17	LocationStateEnumeration	35
3.18	MessageTypeEnumeration	35
3.19	RouteDeviationEnumeration	36
3.20	RouteDirectionEnumeration	36
3.21	ServiceNameEnumeration	36
3.22	ServiceStateEnumeration	36
3.23	SystemDocumentationInformationEnumeration	37
3.24	TicketRazzialInformationEnumeration	37
3.25	TicketValidationEnumeration	37
3.26	VehicleModeEnumeration	37

4	Versionshistorie / Version History	38
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4.1	Version 1.1	38
4.1.1	Funktionale Erweiterungen Functional Upgrade	38

4.1.2	Technische Ergänzungen/Korrekturen Technical Upgrade/Corrections	38
4.1.3	Textliche Korrekturen Textual Corrections	38
4.2	Version 2.0	38
4.2.1	Funktionale Erweiterungen Functional Upgrade	38
4.2.2	Technische Ergänzungen/Korrekturen Technical Upgrade/Corrections	38
4.2.3	Textliche Korrekturen Textual Corrections	39
	Regelwerke – Normen und Empfehlungen / References	40
	Tabellenverzeichnis	41
	Impressum / Imprint	44

1 IBIS-IP datatypes

1.1 IBIS-IP.anyURI

<i>IBIS-IP.anyURI</i>			<i>+Structure</i>	IBIS-IP-Struktur zur Beschreibung eines Adresswertes
	Value	1:1	<i>xs:anyURI</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 1 Beschreibung von IBIS-IP.anyURI

1.2 IBIS-IP.boolean

<i>IBIS-IP.boolean</i>			<i>+Structure</i>	IBIS-IP-Struktur zur Beschreibung eines booleschen Wertes
	Value	1:1	<i>xs:boolean</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 2 Beschreibung von IBIS-IP.boolean

1.3 IBIS-IP.byte

<i>IBIS-IP.byte</i>			<i>+Structure</i>	IBIS-IP-Struktur zur Beschreibung eines Byte-Wertes
	Value	1:1	<i>xs:byte</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 3 Beschreibung von IBIS-IP.byte

1.4 IBIS-IP.date

<i>IBIS-IP.date</i>			<i>+Structure</i>	IBIS-IP-Struktur zur Beschreibung eines Datumswertes
	Value	1:1	<i>xs:date</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 4 Beschreibung von IBIS-IP.date

1.5 IBIS-IP.dateTime

IBIS-IP.dateTime			+Structure	IBIS-IP-Struktur zur Beschreibung eines Datumswertes mit Zeit
	Value	1:1	<i>xs:dateTime</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 5 Beschreibung von IBIS-IP.dateTime

1.6 IBIS-IP.double

IBIS-IP.double			+Structure	IBIS-IP-Struktur zur Beschreibung eines Gleitkommawertes
	Value	1:1	<i>xs:double</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 6 Beschreibung von IBIS-IP.double

1.7 IBIS-IP.duration

IBIS-IP.duration			+Structure	IBIS-IP-Struktur zur Beschreibung einer Zeitdauer
	Value	1:1	<i>xs:duration</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 7 Beschreibung von IBIS-IP.duration

1.8 IBIS-IP.int

IBIS-IP.int			+Structure	IBIS-IP-Struktur zur Beschreibung eines Ganzzahlwertes
	Value	1:1	<i>xs:int</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 8 Beschreibung von IBIS-IP.int

1.9 IBIS-IP.language

IBIS-IP.language			+Structure	IBIS-IP-Struktur zur Beschreibung einer Sprachangabe
	Value	1:1	<i>xs:language</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 9 Beschreibung von IBIS-IP.language

1.10 IBIS-IP.NMTOKEN

IBIS-IP.NMTOKEN			+Structure	IBIS-IP-Struktur zur Beschreibung eines Indexwertes
	Value	1:1	<i>xs:NMTOKEN</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 10 Beschreibung von IBIS-IP.NMTOKEN

1.11 IBIS-IP.nonNegativeInteger

IBIS-IP.nonNegativeInteger			+Structure	IBIS-IP-Struktur zur Beschreibung einer nicht negativen Ganzzahl
	Value	1:1	<i>xs:nonNegativeInteger</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 11 Beschreibung von IBIS-IP.nonNegativeInteger

1.12 IBIS-IP.normalizedString

IBIS-IP.normalizedString			+Structure	IBIS-IP-Struktur zur Beschreibung eines normalisierten Strings
	Value	1:1	<i>xs:normalizedString</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 12 Beschreibung von IBIS-IP.normalizedString

1.13 IBIS-IP.string

IBIS-IP.string			+Structure	IBIS-IP-Struktur zur Beschreibung eines Stringwertes
	Value	1:1	<i>xs:string</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 13 Beschreibung von IBIS-IP.string

1.14 IBIS-IP.time

IBIS-IP.time			+Structure	IBIS-IP-Struktur zur Beschreibung eines Zeitwertes
	Value	1:1	<i>xs:time</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 14 Beschreibung von IBIS-IP.time

1.15 IBIS-IP.unsignedInt

IBIS-IP.unsignedInt			+Structure	IBIS-IP-Struktur zur Beschreibung einer vorzeichenlosen Ganzzahl
	Value	1:1	<i>xs:unsignedInt</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 15 Beschreibung von IBIS-IP.unsignedInt

1.16 IBIS-IP.unsignedLong

IBIS-IP.unsignedLong			+Structure	IBIS-IP-Struktur zur Beschreibung einer vorzeichenlosen Ganzzahl
	Value	1:1	<i>xs:unsignedLong</i>	Angabe des eigentlichen Wertes
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 16 Beschreibung von IBIS-IP.unsignedLong

1.17 InternationalTextType

<i>InternationalTextType</i>			<i>+Structure</i>	IBIS-IP-Struktur zur Beschreibung eines Fremdsprachigen Textes
	<i>Value</i>	1:1	<i>IBIS-IP.string</i>	Angabe des eigentlichen Wertes
	<i>Language</i>	1:1	<i>IBIS-IP.language</i>	Angabe der Sprache
	<i>ErrorCode</i>	0:1	<i>ErrorCodeEnumeration</i>	Wert für einen aufgetretenen Fehler

Tabelle 17 Beschreibung von InternationalTextType

2 Common data structure

2.1 AdditionalAnnouncement

AdditionalAnnouncement			+Structure	Structure which describes the additional information for an announcement
	AnnouncementRef	1:1	<i>IBIS-IP.NMTOKEN</i>	announcement reference
	<i>AnnouncementText</i>	0:*	<i>+InternationalTextType</i>	Announcement text
	<i>AnnouncementTTSText</i>	0:*	<i>+InternationalTextType</i>	Announcement text for text to speech engines
			<i>choice</i>	One of the choices below
a	ImmediateInformation	-1:1	<i>IBIS-IP.boolean</i>	Immediate sending of the additional announcement
b	PeriodicalInformation		<i>IBIS-IP.duration</i>	Periodical sending of the additional announcement
c	InformationAtSpecificPoint		<i>+SpecificPoint</i>	Sending of an announcement at a specific (trip) point (point information cf. 2.34)

Table 1 Description of AdditionalAnnouncement

2.2 Announcement

Announcement			+Structure	Structure with information which is needed for an announcement
	AnnouncementRef	1:1	<i>IBIS-IP.NMTOKEN</i>	announcement reference
	<i>AnnouncementText</i>	0:*	<i>+InternationalTextType</i>	Announcement text
	<i>AnnouncementTTSText</i>	0:*	<i>+InternationalTextType</i>	Announcement text for text to speech engines

Table 2 Description of Announcement

2.3 BayArea

BayArea			+Structure	Structure which describes the bay area (in relation to the stop sign)
	<i>BeforeBay</i>	0:1	<i>IBIS-IP.double</i>	Bay begin, distance to the stop sign in meters in moving direction
	<i>BehindBay</i>	0:1	<i>IBIS-IP.double</i>	Bay ending, distance after the stop sign in meters in moving direction

Table 3 Description of BayArea

2.4 BeaconPoint

BeaconPoint			+Structure	Structure which describes a beacon point
	<i>PointRef</i>	0:1	<i>IBIS-IP.NMOKEN</i>	Reference at a point
	BeaconCode	1:1	<i>IBIS-IP.NMOKEN</i>	Beacon code
	<i>ShortName</i>	0:*	<i>+International TextType</i>	Beacon short name
	<i>Description</i>	0:*	<i>+International TextType</i>	Description of the beacon

Table 4 Description of BeaconPoint

2.5 CardApplInformation

CardApplInformations			+Structure	Structure for information of applications of a read card
	CardApplInformationLength	1:1	<i>IBIS-IP.unsignedInt</i>	Length of the byte array from <i>CardApplInformationData</i>
	CardApplInformationData	1:*	<i>IBIS-IP.byte</i>	Data array for application data

Table 5 Description of CardApplInformation

2.6 CardTicketData

CardTicketData			+Structure	information of tariff data on card
	CardTicketDataID	1:1	<i>IBIS-IP.unsigned-Long</i>	Card ID
	CardTicketDataLength	1:1	<i>IBIS-IP.unsignedInt</i>	Length of ticket data
	CardTicketData	1:*	<i>IBIS-IP.byte</i>	Data array for ticket information

Table 6 Description of CardTicketData

2.7 CardType

CardType			+Structure	Structure to describe a card type (ticket)
	CardSerialNumber	1:1	<i>IBIS-IP.NMOKEN</i>	Serial number of the card
	CardTypeID	1:1	<i>IBIS-IP.NMOKEN</i>	Type ID of the card
	<i>CardTypeText</i>	0:*	<i>+International TextType</i>	Type ID of the card as string/text

Table 7 Description of CardType

2.8 Connection

Connection			+Structure	Structure which describes a connection
	StopRef	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at a stop point which the connection is concerning on
	ConnectionRef	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at the connection
	ConnectionType	1:1	<i>ConnectionTypeEnumeration</i>	Type of connection (cf. 3.2)
	DisplayContent	0:1	<i>+DisplayContent</i>	Display content of the distributor (cf. 2.19)
	Platform	0:1	<i>IBIS-IP.string</i>	Information about the platform for the interchange
	ConnectionState	0:1	<i>ConnectionStateEnumeration</i>	Description of the connection state in case of a ordered connection (cf. 3.1)
	TransportMode	0:1	<i>+Vehicle</i>	Information about the transport mode for the connection (cf.2.62)
	ExpectedDepartureTime	0:1	<i>IBIS-IP.dateTime</i>	Information on the expected departure based on realtime information
	ScheduledDepartureTime	0:1	<i>IBIS-IP.dateTime</i>	Information on the planned departure

Table 8 Description of Connection

2.9 DataAcceptedResponse

DataAcceptedResponse			+Structure	Struktur eines Dienstes zur Beantwortung einer Operation, welche Daten dem Dienst zur Verfügung stellt
	DataAcceptedResponseData	1:1	<i>+DataAcceptedResponseDataStructure</i>	Ausführliche Antwortstruktur (siehe 2.10)
	OperationErrorMessage	1:1	<i>IBIS-IP.string</i>	Fehlermeldung

Table 9 Description of DataAcceptedResponse

2.10 DataAcceptedResponseData

DataAcceptedResponseData			+Structure	Detailed response structure including data
	TimeStamp	1:1	<i>IBIS-IP.dateTime</i>	Time stamp of the response
	DataAccepted	1:1	<i>IBIS-IP.boolean</i>	Data acknowledge
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Descriptive value for an error (cf. 3.11)
	ErrorInformation	0:1	<i>IBIS-IP.string</i>	Error code information (free text)

Table 10 Description of DataAcceptedResponseData

2.11 DataVersion

With the data version different versions of this XML-Scheme are possible in one system.

DataVersion			+Structure	Structure with information of the data version
	DataType	1:1	<i>IBIS-IP.string</i>	Free text description of the data type
	VersionRef	1:1	<i>IBIS-IP.NMOKEN</i>	Version information

Table 11 Description of DataVersion

2.12 DataVersionList

DataVersionList			+Structure	Structure with which several data versions can be listed
	DataVersion	1:*	+DataVersion	Data Structure for the description of data types (cf. 2.11)

Table 12 Description of DataVersionList

2.13 Destination

Destination			+Structure	Structure with information about the destination
	DestinationRef	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at the display destination text
	DestinationName	0:*	+International TextType	Text which is published at the display
	DestinationShortName	0:*	+International TextType	Short text which is published at the display

Table 13 Description of Destination

2.14 DeviceInformation

DeviceInformation			+Structure	Structure with non changeable device configuration data
<i>DeviceInformationGroup</i>	DeviceName	1:1	<i>IBIS-IP.string</i>	Device name
	Manufacturer	1:1	<i>IBIS-IP.string</i>	Manufacturer of the device
	SerialNumber	1:1	<i>IBIS-IP.NMOKEN</i>	Serial number of the device
	DeviceClass	1:1	+DeviceClass Enumeration	One of the possible device class (cf. 3.3)
	DataVersionList	0:1	+DataVersion List	List with the data versions (cf. 2.12)
	WebInterfaceAddress	0:1	<i>IBIS-IP.anyURI</i>	URI for a optional web interface for maintenance

Table 14 Description of DeviceInformation

2.15 DeviceSpecification

<i>DeviceSpecification</i>			<i>+Structure</i>	Structure which describes a device
	<i>DeviceClass</i>	1:1	<i>DeviceClassE numeration</i>	One of the available device classes (cf. 3.3)
	<i>DeviceID</i>	1:1	<i>IBIS-IP.NMTOKEN</i>	Device-ID

Table 15 Description of DeviceSpecification

2.16 DeviceSpecificationList

<i>DeviceSpecificationList</i>			<i>+Structure</i>	Structure with the device specification list
	<i>DeviceSpecification</i>	1:*	<i>+DeviceSpecification</i>	Device information (cf. 2.15)

Table 16 Description of DeviceSpecificationList

2.17 DeviceSpecificationWithState

<i>DeviceSpecificationWithState</i>			<i>+Structure</i>	Structure with the device specification including the current working states
	<i>DeviceSpecification</i>	1:1	<i>+DeviceSpecification</i>	Structure which describes a device (cf. 2.15)
	<i>DeviceState</i>	1:1	<i>DeviceStateE numeration</i>	possible states of the device (cf. 3.5)

Table 17 Description of DeviceSpecificationWithState

2.18 DeviceSpecificationWithStateList

<i>DeviceSpecificationWithStateList</i>			<i>+Structure</i>	List of objects of with device specifications and their states
	<i>DeviceSpecificationWithState</i>	1:*	<i>+DeviceSpecificationWithState</i>	Structure with the device specification including the current working states

Table 18 Description of DeviceSpecificationWithStateList

2.19 DisplayContent

<i>DisplayContent</i>			+Structure	Structure with the complete display content
	<i>DisplayContentRef</i>	0:1	<i>IBIS-IP.NMOKEN</i>	Reference at the display content
	LineInformation	1:1	+ <i>LineInformation</i>	information about the line, which has to be displayed (cf. 2.31)
	Destination	1:1	+ <i>Destination</i>	Information about the destination, which has to be displayed (cf. 2.13)
	<i>ViaPoint</i>	0:*	+ <i>ViaPoint</i>	Information about the via points, which has to be displayed (cf. 2.63)
	<i>AdditionalInformation</i>	0:*	+ <i>InternationalTextType</i>	Information about the additional information like express bus, additional bus etc. , which has to be displayed
<i>Display Policy</i>	<i>Priority</i>	0:1	<i>IBIS-IP.nonNegativeInteger</i>	Information about the display priority
	<i>PeriodDuration</i>	0:1	<i>IBIS-IP.duration</i>	Information about the period duration
	<i>Duration</i>	0:1	<i>IBIS-IP.duration</i>	Duration of a display turn

Table 19 Description of DisplayContent

2.20 DoorCounting

<i>DoorCounting</i>			+Structure	Counting data of a door
	ObjectClass	1:1	<i>DoorCountingObjectClassEnumeration</i>	Value with the detailed description of the counted object (cf. chapter 3.6)
	In	1:1	+ <i>IBIS-IP.int</i>	Number of boarded passengers
	Out	1:1	+ <i>IBIS-IP.int</i>	Number of escaped passengers
	<i>CountQuality</i>	0:1	<i>DoorCountingQualityEnumeration</i>	Textstring with information on the quality of counting (cf. 3.8)

Table 20 Description of DoorCounting

2.21 DoorCountingList

<i>DoorCountingList</i>			+Structure	Structure for a list of door with for which values are set
	DoorID	1:1	<i>IBIS-IP.NMOKEN</i>	ID for identification of the door
	CountSet	1:*	+ <i>DoorCounting</i>	Structure with counting values (cf. chapter 2.20)

Table 21 Description of DoorCountingList

2.22 DoorInformation

<i>DoorInformation</i>			<i>+Structure</i>	Structure with information about the counting at a specific door
	DoorID	1:1	<i>IBIS-IP.NMOKEN</i>	ID for identification of the door
	Count	1:*	<i>+DoorCounting</i>	structure for the counting data (cf. 2.20)
	State	0:1	<i>+DoorState</i>	Structure with door states (cf. 2.25)

Table 22 Description of DoorInformation

2.23 DoorOpenState

<i>DoorOpenState</i>			<i>+Structure</i>	Door state
	Value	1:1	<i>DoorOpenStateEnumeration</i>	Description value of the opening state of a door (cf. 3.9)
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Descriptive value for an error (cf. 3.11)

Table 23 Description of DoorOpenState

2.24 DoorOperationState

<i>DoorOperationState</i>			<i>+Structure</i>	Door operation state
	Value	1:1	<i>DoorOperationStateEnumeration</i>	Description value of the operation state (cf. chapter 3.10)
	ErrorCode	0:1	<i>ErrorCodeEnumeration</i>	Descriptive value for an error (cf. chapter 3.11)

Table 24 Description of DoorOperationState

2.25 DoorState

<i>DoorState</i>			<i>+Structure</i>	Structure for description of the door state
	OpenState	1:1	<i>+DoorOpenState</i>	Structure for description of door opening state (cf. 2.23)
	OperationState	0:1	<i>+DoorOperationState</i>	Structure for description of the door operation state (cf. 2.24)

Table 25 Description of DoorState

2.26 FareZoneInformation

FareZoneInformation			<i>+Structure</i>	Structure for the description of information for tariffs and fare zones
<i>Fare-Zone-Information</i>	FarezoneID	1:1	<i>IBIS-IP.NMTOKEN</i>	Index of a fare zone
	<i>FarezoneType</i>	0:1	<i>+ZoneType</i>	Information about the fare zone type (cf. 2.64)
	<i>FarezoneLongName</i>	0:*	<i>+InternationalTextType</i>	Fare zone long name
	<i>FarezoneShortName</i>	0:*	<i>+InternationalTextType</i>	Fare zone short name

Table 26 Description of FareZoneInformation

2.27 GlobalCardStatus

GlobalCardStatus			<i>+Structure</i>	Global card status
	GlobalCardStatusID	1:1	<i>IBIS-IP.unsignedInt</i>	ID of Card status based on the EN 1545
	<i>GlobalCardStatusText</i>	0:*	<i>IBIS-IP.string</i>	Text of global card status based on the EN 1545

Table 27 Description of GlobalCardStatus

2.28 GNSSPoint

GNSSPoint			<i>+Structure</i>	Structure which describes a point where coordinates are used for locating the point
	<i>PointRef</i>	0:1	<i>IBIS-IP.NMTOKEN</i>	Reference at a GNSS point
	Longitude	1:1	<i>+GNSSCoordinate</i>	Structure for geographical longitude (cf. 2.29)
	Latitude	1:1	<i>+GNSSCoordinate</i>	Structure for geographical latitude (cf. 2.29)
	<i>Altitude</i>	0:1	<i>IBIS-IP.double</i>	Geographical Altitude

Table 28 Description of GNSSPoint

2.29 GNSSCoordinate

GNSSCoordinate			<i>+Structure</i>	Structure for describing coordinates on the surface
	Degree	1:1	<i>IBIS-IP.double</i>	Coordinate in degree
	Direction	1:1	<i>IBIS-IP.string</i>	geographical direction

Table 29 Description of GNSSCoordinate

2.30 JourneyStopInformation

<i>JourneyStopInformation</i>			<i>+Structure</i>	Structure to describe a stop point by the Journey Information Determination
	StopRef	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at the stop point
	StopName	1:*	<i>+InternationalTextType</i>	Name of stop point
	<i>StopAlternativeName</i>	0:*	<i>+InternationalTextType</i>	Alternative name of stop point
	<i>Platform</i>	0:1	<i>IBIS-IP.string</i>	Name of the platform
	DisplayContent	1:*	<i>+DisplayContent</i>	Information about display content (cf. 2.19)
	<i>Announcement</i>	0:*	<i>+Announcement</i>	Information for announcement (cf. 2.2)
	<i>ArrivalScheduled</i>	0:1	<i>IBIS-IP.dateTime</i>	Scheduled arrival
	<i>DepartureScheduled</i>	0:1	<i>IBIS-IP.dateTime</i>	Scheduled departure
	<i>Connection</i>	0:*	<i>+Connection</i>	Information about the connections (cf. 2.8)
	<i>BayArea</i>	0:1	<i>+BayArea</i>	Information about the size of the Bay Area (cf. 2.3)
	<i>GNSSPoint</i>	0:1	<i>+GNSSPoint</i>	Information for the Geo-Coordinates of the stop point (cf. 2.28)
	<i>FareZone</i>	0:*	<i>IBIS-IP.NMOKEN</i>	Valid fare zone at the current stop point

Table 30 Description of JourneyStopInformation

2.31 LineInformation

<i>LineInformation</i>			<i>+Structure</i>	Structure for description of the line information
	LineRef	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at the line
	<i>LineName</i>	0:*	<i>+InternationalTextType</i>	name of line
	<i>LineShortName</i>	0:*	<i>+InternationalTextType</i>	short name of line
	<i>LineNumber</i>	0:1	<i>IBIS-IP.int</i>	number of line

Table 31 Description of LineInformation

2.32 LogMessage

<i>LogMessage</i>			<i>+Structure</i>	Structure for logging message
	MessageProvider	1:1	<i>+DeviceSpecification</i>	Message provider (cf. 2.15)
	MessageBody	1:1	<i>+Message</i>	Message content (cf. 2.33)

Table 32 Description of LogMessage

2.33 Message

<i>Message</i>			+Structure	Structure for describing a message
	Message-ID	1:1	<i>IBIS-IP.int</i>	index of message
	TimeStamp	1:1	<i>IBIS-IP.dateTime</i>	time stamp, when the message was created
	MessageType	1:1	<i>MessageType Enumeration</i>	kind of message (cf. chapter 3.18)
	MessageText	1:1	<i>IBIS-IP.string</i>	Message text

Table 33 Description of Message

2.34 Point

<i>Point</i>			+Structure	Structure with (logical) point description
	PointIndex	1:1	<i>IBIS-IP.int</i>	Point index
	PointType	1:1	+ <i>PointType</i>	Type of the point (cf. chapter 2.36)
	DistanceToPreviousPoint	1:1	<i>IBIS-IP.int</i>	Distance to the previous point in [m]

Table 34 Description of Point

2.35 PointSequence

<i>PointSequence</i>			+Structure	Structure for describing a sequence of points
	Point	2:*	+ <i>Point</i>	Description of points (cf. 2.34)

Table 35 Description of PointSequence

2.36 PointType

<i>PointType</i>			+Structure	Structure for choosing a specific point type
			<i>choice</i>	One of the structures below
a	StopPoint	-1:1	+ <i>JourneyStopInformation</i>	Stop point (cf. chapter 2.30)
b	BeaconPoint		+ <i>BeaconPoint</i>	Beacon point (cf. chapter 2.4)
c	GNSSLocationPoint		+ <i>GNSSPoint</i>	Point, location described in coordinates (cf. chapter 2.28)
d	TimingPoint		+ <i>TimingPoint</i>	Point where a schedule comparison should take place (cf. chapter 2.56)
e	TSPPoint		+ <i>TSPPoint</i>	Point for traffic light prioritisation (cf. chapter 2.59)

Table 36 Description of PointType

2.37 ServiceIdentification

The ServiceIdentification structure allows identifying a service in the system. Contrary to the ServiceSpecification (cf. 2.42) this structure is additionally including the information about the device where the service is running.

ServiceIdentification			+Structure	Structure for the unique identification of a service in the system
	ServiceName	1:1	+ServiceSpecification	Structure for the service description
	Device	1:1	+DeviceSpecification	Structure for device description

Table 37 Description of ServiceIdentification

2.38 ServiceIdentificationWithState

ServiceIdentificationWithState			+Structure	Structure for unique identification of a service in the whole system including its state
	ServiceIdentification	1:1	+ServiceIdentification	Structure for unique identification of a service in the whole system (cf. 2.37)
	ServiceState	1:1	ServiceStateEnumeration	Information about the state of the service

Table 38 Description of ServiceIdentificationWithState

2.39 ServiceIdentificationWithStateList

ServiceIdentificationWithStateList			+Structure	Structure with a list of all unique services and their state in the system
	ServiceIdentificationWithState	1:*	+ServiceIdentificationWithState	Structure for the unique identification of a service including its state (cf. 2.43)

Table 39 Description of ServiceIdentificationWithStateList

2.40 ServiceInformation

ServiceInformation			+Structure	Structure for description of the services which are available on a device
	Service	1:1	+ServiceSpecification	Structure for description of a service (cf. 2.42)
	Autostart	1:1	IBIS-IP.boolean	Information whether a service has to be started automatically by the DeviceManagement (and not by the SystemManagementService), especially relevant for the vehicle operation functionalities

Table 40 Description of ServiceInformation

2.41 ServiceInformationList

ServiceInformationList			+Structure	Structure for describing a list of services which are available on a device
	ServiceInformation	1:*	+ServiceInformation	Structure for describing available services (cf. 2.40)

Table 41 Description of ServiceInformationList

2.42 ServiceSpecification

Die ServiceSpecification beschreibt einen Dienst geräteweit eindeutig durch Angabe des ServiceNamens und der IBIS-IP-Version. Eine systemweit eindeutige Identifikation erfordert zusätzlich die Kenntnis des Gerätes, auf dem ein Dienst läuft. Die entsprechende Datenstruktur ist die Servicelentifikation (vgl. 2.37)

ServiceSpecification			+Structure	Structure for the unique service identification on a device
	ServiceName	1:1	ServiceName Enumeration	A possible service (cf. 0)
	IBIS-IP-Version	1:1	IBIS-IP.NMTOKEN	Version information of the used protocol (this is especially necessary for the SystemManagementService to know which service (version) has to be started)

Table 42 Description of ServiceSpecification

2.43 ServiceSpecificationWithState

ServiceSpecificationWithState			+Structure	Structure for the unique identification of a service at the device including its status
	ServiceSpecification	1:1	+ServiceSpecification	Structure which describes a service (cf. 2.42)
	ServiceState	1:1	ServiceStateEnumeration	Information about the operation state of the service

Table 43 Description of ServiceSpecificationWithState

2.44 ServiceSpecificationWithStateList

ServiceSpecificationWithStateList			+Structure	Structure with a list of the service specifications including the operation states
	ServiceSpecificationWithState	1:*	+ServiceSpecificationWithState	Description structure of a service including the operation state (cf 2.43)

Table 44 Description of ServiceSpecificationWithStateList

2.45 ServiceStart

ServiceStart			+Structure	Structure with services that are available at one device
	ServiceIdentification	1:1	+ServiceIdentification	Structure with all available services (cf. 2.37)
	Autostart	1:1	+IBIS-IP.boolean	Autostart flag (true or false)

Table 45 Description of ServiceStart

2.46 ServiceStartList

ServiceStartList			+Structure	Structure with services that are available at one device
	ServiceIdentification	1:*	+ServiceIdentification	Structure with all available services (cf. 2.37)

Table 46 Description of ServiceStartList

2.47 ShortTripStop

ShortTripStop			+Structure	Structure with a list of all possible short trips
	JourneyStopInformation	1:1	+JourneyStopInformation	Structure which describes a journey stop (cf. 2.30)
	FareZoneInformation	1:1	+FareZoneInformation	Structure which describes a fare zone (cf. 2.52)

Table 47 Description of ShortTripStop

2.48 ShortTripStopList

ShortTripStopList			+Structure	Structure with a list of all possible short trips
	ShortTripStopList	1:*	+ShortTripStop	Structure which describes one short trip (cf. 2.47)

Table 48 Description of ShortTripStopList

2.49 SpecificPoint

SpecificPoint			+Structure	Structure with a specific point
	PointRef	1:1	IBIS-IP.NMTOKEN	Reference at a point
	DistanceToPreviousPoint	1:1	IBIS-IP.double	Distance to the previous point in [m]

Table 49 Description of SpecificPoint

2.50 StopInformation

StopInformation		+Structure	Structure for description of a stop point
StopIndex	1:1	<i>IBIS-IP.int</i>	Index of this stop point in a list of stop point
StopRef	1:1	<i>IBIS-IP.NMTOKEN</i>	Reference at a stop point
StopName	1:*	<i>+International TextType</i>	name of stop point
<i>StopAlternativeName</i>	0:*	<i>+International TextType</i>	alternative name of stop point
<i>Platform</i>	0:1	<i>IBIS-IP.string</i>	Name of the platform
DisplayContent	1:*	<i>+DisplayContent</i>	Information about the display content (cf. chapter 2.19)
<i>StopAnnouncement</i>	0:*	<i>+Announcement</i>	Information about the announcement (cf. chapter 2.2)
<i>ArrivalScheduled</i>	0:1	<i>IBIS-IP.dateTime</i>	Scheduled arrival
<i>DepartureScheduled</i>	0:1	<i>IBIS-IP.dateTime</i>	Scheduled departure
<i>RecordedArrivalTime</i>	0:1	<i>IBIS-IP.dateTime</i>	Recorded arrival time
<i>DistanceToNextStop</i>	0:1	<i>IBIS-IP.int</i>	Distance to the next stop point
<i>Connection</i>	0:*	<i>+Connection</i>	Information about the connections (cf. chapter 2.8)
<i>FareZone</i>	0:*	<i>IBIS-IP.NMTOKEN</i>	Valid fare zone at this stop point

Table 50 Description of StopInformation

2.51 StopInformationRequest

StopInformationRequest		+Structure	Structure for description of a stop point
StopIndex	0:1	<i>IBIS-IP.int</i>	Index of this stop point in a list of stop point
StopRef	0:1	<i>IBIS-IP.NMTOKEN</i>	Reference at a stop point
StopName	0:1	<i>+International TextType</i>	name of stop point
DisplayContent	1:*	<i>+DisplayContent</i>	Information about the display content (cf. chapter 2.19)
<i>StopAnnouncement</i>	0:*	<i>+Announcement</i>	Information about the announcement (cf. chapter 2.2)
<i>ArrivalScheduled</i>	0:1	<i>IBIS-IP.dateTime</i>	Scheduled arrival
<i>DepartureScheduled</i>	0:1	<i>IBIS-IP.dateTime</i>	Scheduled departure
<i>RecordedArrivalTime</i>	0:1	<i>IBIS-IP.dateTime</i>	Recorded arrival time
<i>DistanceToNextStop</i>	0:1	<i>IBIS-IP.int</i>	Distance to the next stop point
<i>Connection</i>	0:*	<i>+Connection</i>	Information about the connections (cf. chapter 2.8)
<i>FareZone</i>	0:*	<i>IBIS-IP.NMTOKEN</i>	Valid fare zone at this stop point

Table 51 Description of StopInformationRequest

2.52 StopPointTariffInformation

StopPointTariffInformationStructure			+Structure	Structure with tariff information for a stop point
Stop-Point-Tariff-Information	JourneyStopInformation	1:1	+Journey-StopInformationStructure	Information about the requested stop point (cf. 2.30)
	FareZoneInformation	1:1	+FareZone-Information-Structure	Information about the fare zone for this stop point (cf. 2.26)

Table 52 Description of StopInformation

2.53 StopSequence

StopSequence			+Structure	Structure for describing a sequence of stop points
	StopPoint	2:*	+StopInformation	Stop point information (cf. 2.50)

Table 53 Description of StopSequence

2.54 SubscribeRequest

SubscribeRequest			+Structure	Structure with a subscription request
	Client-IP-Address	1:1	IBIS-IP.string	IP address of the client for which subscription
	ReplyPort	0:1	IBIS-IP.int	Reply port for the subscription
	Reply-Path	0:1	IBIS-IP.string	Reply path for the subscriptions

Table 54 Description of SubscribeRequest

2.55 SubscribeResponse

SubscribeResponse			+Structure	Structure for the subscription response
			Choice	One of the structures below
a	Active	-1:1	IBIS-IP.boolean	Information about the subscription acknowledgement
b	OperationErrorMessage		IBIS-IP.string	Error message

Table 55 Description of SubscribeResponse

2.56 TimingPoint

TimingPoint			+Structure	Structure for describing a point, where a schedule comparison should take place
	TimingPointRef	0:1	IBIS-IP.NMOKEN	Reference at a point
	ScheduleTime	1:1	IBIS-IP.dateTime	Scheduled departure time
	GNSSPoint	1:1	+GNSSPoint	GNSS information (cf. 2.28)

Table 56 Description of TimingPoint

2.57 TripInformation

<i>TripInformation</i>			+Structure	Structure with trip information
	<i>TripRef</i>	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at the trip ID
	<i>StopSequence</i>	1:1	+ <i>StopSequence</i>	Description of a stop sequence (cf. 2.53)
	<i>LocationState</i>	0:1	<i>LocationState Enumeration</i>	Rough information for the current position between two stop point (cf. 3.17)
	<i>TimetableDelay</i>	0:1	<i>IBIS-IP.int</i>	Timetable delay in seconds. Early times are shown as negative values.
	<i>AdditionalTextMessage</i>	0:*	+ <i>International TextType</i>	Additional text information (possibly multilingual)
	<i>AdditionalAnnouncement</i>	0:*	+ <i>AdditionalAnnouncement</i>	Additional announcement (cf. 2.1)
	<i>RouteDirection</i>	0:1	+ <i>RouteDirection Enumeration</i>	Information on the direction a route is served (cf. 3.20)

Table 57 Description of TripInformation

2.58 TripSequence

<i>TripSequence</i>			+Structure	Structure with a trip sequence
	<i>TripRef</i>	1:1	<i>IBIS-IP.NMOKEN</i>	Reference at the trip ID
	<i>TripIndex</i>	0:1	<i>IBIS-IP.int</i>	Index at the current trip
	<i>TripStart</i>	0:1	<i>IBIS-IP.time</i>	Scheduled trip start
	<i>CurrentStopIndex</i>	0:1	<i>IBIS-IP.int</i>	Information about the index of the current stop point
	<i>JourneyMode</i>	0:1	<i>JourneyMode Enumeration</i>	Information about the mode of the journey (cf. chapter 3.16)
	<i>PointSequence</i>	1:1	+ <i>PointSequence</i>	Description of a sequence of points (cf. chapter 2.35)

Table 58 Description of TripSequence

2.59 TSPPoint

<i>TSPPoint</i>			+Structure	Structure with description of a point for traffic light prioritisation
	<i>TSPPointRef</i>	0:1	<i>IBIS-IP.NMOKEN</i>	Reference at a TSP point
	<i>TSPCode</i>	1:1	<i>IBIS-IP.NMOKEN</i>	TSP content
	<i>ShortName</i>	0:*	+ <i>International TextType</i>	TSP short name
	<i>Description</i>	0:*	+ <i>International TextType</i>	TSP description

Table 59 Description of TSPPoint

2.60 UnsubscribeRequest

<i>UnsubscribeRequest</i>			+Structure	Structure for the request of termination of a subscription
	Client-IP-Address	1:1	<i>IBIS-IP.string</i>	Information about the IP address where the subscription has to be terminated
	<i>ReplyPort</i>	0:1	<i>IBIS-IP.int</i>	Information about the reply port where the subscription has to be terminated
	<i>Reply-Path</i>	0:1	<i>IBIS-IP.string</i>	Information about the reply path where the subscription has to be terminated

Table 60 Description of UnsubscribeRequest

2.61 UnsubscribeResponse

<i>UnsubscribeResponse</i>			+Structure	Structure for the response to a request of termination of a subscription
			<i>Choice</i>	One of the structures below
	a Active	-1:1	<i>IBIS-IP.boolean</i>	Information about the termination
	b OperationErrorMessage		<i>IBIS-IP.string</i>	Error message

Table 61 Description of UnsubscribeResponse

2.62 Vehicle

<i>Vehicle</i>			+Structure	Structure with information about the vehicle
	VehicleTypeRef	1:1	<i>IBIS-IP.NMTOKEN</i>	Reference at a vehicle type
	<i>Name</i>	0:*	<i>+InternationalTextType</i>	Vehicle name

Table 62 Description of Vehicle

2.63 ViaPoint

<i>ViaPoint</i>			+Structure	Structure which describes a via point
	ViaPointRef	1:1	<i>IBIS-IP.NMTOKEN</i>	Reference at a via stop point
	<i>PlaceRef</i>	0:1	<i>IBIS-IP.NMTOKEN</i>	Reference at the associated stop place
	<i>PlaceName</i>	0:*	<i>+InternationalTextType</i>	name of the via point
	<i>PlaceShortName</i>	0:*	<i>+InternationalTextType</i>	short name of the via point
	<i>ViaPointDisplayPriority</i>	0:1	<i>IBIS-IP.int</i>	Information about the display priority of the via point

Table 63 Description of ViaPoint

2.64 ZoneType

ZoneType			<i>+Structure</i>	Structure for description of a zone type
	<i>FarezoneTypeID</i>	1:1	<i>IBIS-IP.NMTOKEN</i>	Index at the fare zone type
	<i>FarezoneTypeName</i>	0:*	<i>+International TextType</i>	Fare zone type name

Table 64 Description of ZoneType

3 Common enumerations

The following chapter describes the enumerations used in IBIS-IP, which must be applied depending on the context in data exchange.

3.1 ConnectionStateEnumeration

Enumeration Name	Possible Values	Description
ConnectionStateEnumeration	ConnectionBroken ConnectionOK NoInformationAvailable	Information about the status of the connection

Table 65 Description of ConnectionStateEnumeration

3.2 ConnectionTypeEnumeration

Enumeration Name	Possible Values	Description
ConnectionTypeEnumeration	Interchange ProtectedConnection	Information about the type of the connection

Table 66 Description of ConnectionTypeEnumeration

3.3 DataIntervalEnumeration

Enumeration Name	Possible Values	Description
DataIntervalEnumeration	DistanceData GNSSData Heartbeat NetworkLocationData	Information about the type of cyclic data

Table 67 Description of DataIntervalEnumeration

3.4 DeviceClassEnumeration

Enumeration Name	Possible Values	Description
DeviceClassEnumeration	OnBoardUnit SideDisplay FrontDisplay InteriorDisplay Validator TicketVendingMachine AnnouncementSystem MMI VideoSystem APC MobileInterface Other TestDevice	Information about the device class according to VDV 301-2

Table 68 Description of DeviceClassEnumeration

3.5 DeviceStateEnumeration

Enumeration Name	Possible Values	Description
DeviceStateEnumeration	defective notavailable running readyForShutdown	Information about the device state

Table 69 Description of DeviceStateEnumeration

3.6 DeviceTaskEnumeration

Enumeration Name	Possible Values	Description
DeviceTaskEnumeration	restart start_standby stop_standby	Information about the device tasks according to VDV 301-2

Table 70 Description of DeviceTaskEnumeration

3.7 DoorCountingObjectClassEnumeration

Enumeration Name	Possible Values	Description
DoorCountingObjectClassEnumeration	Adult Bike Child Pram Wheelchair Unidentified Others	Information about the counted objects at the counting of passengers

Table 71 Description of DoorCountingObjectClassEnumeration

3.8 DoorCountingQualityEnumeration

Enumeration Name	Possible Values	Description
DoorCountingQualityEnumeration	Defect Other Regular Sabotage	Information about the counting quality

Table 72 Description of DoorCountingQualityEnumeration

3.9 DoorOpenStateEnumeration

Enumeration Name	Possible Values	Description
DoorOpenStateEnumeration	DoorsOpen AllDoorsClosed SingleDoorOpen SingleDoorClosed	Information about the opening state of a door

Table 73 Description of DoorOpenStateEnumeration

3.10 DoorOperationStateEnumeration

Enumeration Name	Possible Values	Description
DoorOperationStateEnumeration	Locked Normal EmergencyRelease	Information about the dorr operation state of a door

Table 74 Description of DoorOperationStateEnumeration

3.11 ErrorCodeEnumeration

Enumeration Name	Possible Values	Description
ErrorCodeEnumeration	DataEstimated FaultData NoScheduleDataAvailable DeviceMissing NoServiceResponse ImportantDataNotAvailable DataNotValid	Descriptive Information about the error reason

Table 75 Description of ErrorCodeEnumeration

3.12 ExitSideEnumeration

Enumeration Name	Possible Values	Description
ExitSideEnumeration	both left right unknown	Information about the exit side

Table 76 Description of ExitSideEnumeration

3.13 GNSSCoordinateSystemEnumeration

Enumeration Name	Possible Values	Description
GNSSCoordinateSystemsEnumeration	CH1903 ETSR89 IERS NAD27 NAD83 WGS84 WGS72 SGS85 P90	Information about the coordinate system used by the GNSS system

Table 77 Description of GNSSCoordinateSystemsEnumeration

3.14 GNSSQualityEnumeration

Enumeration Name	Possible Values	Description
GNSSQualityEnumeration	dGPS Estimated GPS NotValid Unknown	Information about the GNSS quality

Table 78 Description of GNSSQualityEnumeration

3.15 GNSSTypeEnumeration

Enumeration Name	Possible Values	Description
GNSSTypeEnumeration	GPS Glonass Galileo Beidou IRNSS Other DeadReckoning MixedGNSSTypes	Information about the GNSS type

Table 79 Description of GNSSTypeEnumeration

3.16 JourneyModeEnumeration

Enumeration Name	Possible Values	Description of
JourneyModeEnumeration	NoTrip AdditionalTrip ServiceTrip	Information about the journey mode

Table 80 Description of JourneyModeEnumeration

3.17 LocationStateEnumeration

Enumeration Name	Possible Values	Description
LocationStateEnumeration	AfterStop AtStop BetweenStop BeforeStop	Information about the location state relative to the subsequent stop point

Table 81 Description of LocationStateEnumeration

3.18 MessageTypeEnumeration

Enumeration Name	Possible Values	Description
MessageTypeEnumeration	Status Warning Error	Information about a message type

Table 82 Description of MessageTypeEnumeration

3.19 RouteDeviationEnumeration

Enumeration Name	Possible Values	Description
RouteDeviationEnumeration	onroute offroute unknown	Information about the route deviation

Table 83 Description of RouteDeviationEnumeration

3.20 RouteDirectionEnumeration

Enumeration Name	Possible Values	Description
RouteDirectionEnumeration	Forward Backward Clockwise Counterclockwise Other	Information on the general direction of a route

Table 84 Description of RouteDirectionEnumeration

3.21 ServiceNameEnumeration

Enumeration Name	Possible Values	Description
ServiceNameEnumeration	BeaconLocationService CustomerInformationService DeviceManagementService DistanceLocationService GNSSLocationService JourneyInformationService NetworkLocationService PassengerCountingService SystemDocumentationService SystemManagementService TicketingService TimeService TestService VideoLiveService VideoRecordingService VideoDisplayService	Information about the service names in VDV 301-2

Table 85 Description of ServiceNameEnumeration

Remark: In Version 1.0 of the ServiceNameEnumeration the PassengerCountingService is missing. If needed add this entry by yourself.

3.22 ServiceStateEnumeration

Enumeration Name	Possible Values	Description
ServiceStateEnumeration	defective notrunning running starting standby	Information about the service status

Table 86 Description of ServiceStateEnumeration

3.23 SystemDocumentationInformationEnumeration

Enumeration Name	Possible Values	Description
SystemDocumentationInformationEnumeration	ErrorMessage StatusMessage WarningMessage All	Information about the message type

Table 87 Description of SystemDocumentationInformationEnumeration

3.24 TicketRazziaInformationEnumeration

Enumeration Name	Possible Values	Description
TicketRazziaInformationEnumeration	razzia norazzia	Information whether a razzia takes place

Table 88 Description of TicketRazziaInformationEnumeration

3.25 TicketValidationEnumeration

Enumeration Name	Possible Values	Description
TicketValidationEnumeration	Valid notvalid NoCard	Validation result

Table 89 Description of TicketValidationEnumeration

3.26 VehicleModeEnumeration

Enumeration Name	Possible Values	Description
VehicleModeEnumeration	Air bus coach ferry metro rail tram underground	Vehicle mode information

Table 90 Description of VehicleModeEnumeration

4 Versionshistorie / Version History

4.1 Version 1.1

4.1.1 Funktionale Erweiterungen Functional Upgrade

- Neue Enumeration *RouteDirectionEnumeration* ergänzt
New enumeration *RouteDirectionEnumeration* added

4.1.2 Technische Ergänzungen/Korrekturen Technical Upgrade/Corrections

- *Connection*-Struktur, neues Element *ScheduledDepartureTime* ergänzt, Min:Max-Angaben korrigiert
Connection structure, new element *ScheduledDepartureTime* added, Min:Max information corrected
- *TripInformation*: Typ der *AdditionalTextMessage* von IBIS-IP.string auf +InternationalTextType geändert, neues Element *RouteDirection* ergänzt
TripInformation: Type of *AdditionalTextMessage* of IBIS-IP.string changed to +InternationalTextType, new element *RouteDirection* added

4.1.3 Textliche Korrekturen Textual Corrections

- *DeviceSpecification*: typo korrigiert
DeviceSpecification: typo corrected

4.2 Version 2.0

4.2.1 Funktionale Erweiterungen Functional Upgrade

- *ServiceNameEnumeration* aktualisiert, *PassengerCountingService*, *VideoLiveService*, *VideoRecordingService* and *VideoDisplayService* ergänzt (vgl. 3.21)
ServiceNameEnumeration updated, *PassengerCountingService*, *VideoLiveService*, *VideoRecordingService* and *VideoDisplayService* added (cf. 3.21)

4.2.2 Technische Ergänzungen/Korrekturen Technical Upgrade/Corrections

- Struktur *IBIS-IP-VersionEnumeration* wegen fehlenden Bedarfs entfernt
Structure *IBIS-IP-VersionEnumeration* removed because there is no need for it
- *DeviceStateEnumeration*: Wert *readyForShutdown* hinzugefügt
DeviceStateEnumeration: value *readyForShutdown* added
- In *ConnectionStructure: DisplayContentStructure*: *minOccurs* = "0" aktualisiert (vgl. 2.8)
In *ConnectionStructure: DisplayContentStructure*: *minOccurs* = "0" updated (cf. 2.8)

- *TripInformation* structure: *AdditionalTextMessage*: maxOccurs="unbounded" aktualisiert (vgl. 2.57)
TripInformation structure: *AdditionalTextMessage*: maxOccurs="unbounded" updated (cf. 2.57)

4.2.3 Textliche Korrekturen Textual Corrections

- Beachte: Ein Schreibfehler in den XSD-Versionen 1.0 and 1.1 (*ExpectedDepatureTime* anstatt *ExpectedDepartureTime*) in der *Connection*-Struktur ist nun in "IBIS-IP_common_2.0.xsd" entfernt worden.
Please note that a typo in the XSDs of version 1.0 and 1.1 (*ExpectedDepatureTime* instead of *ExpectedDepartureTime*) in the *Connection* structure is now removed in "IBIS-IP_common_2.0.xsd"
- Titel der Kapitel in Englisch
Title of chapters in English

Regelwerke – Normen und Empfehlungen / References

- (1) CEN/TS 13149-7 Öffentlicher Verkehr - Planungs- und Steuerungssysteme für
Straßenfahrzeuge - Teil 7: System- und Netzwerkarchitektur; Englische
Fassung CEN/TS 13149-7:2015 /

Public transport - Road vehicle scheduling and control systems - Part
7: System and Network Architecture

- (2) CEN/TS 13149-8 Öffentlicher Verkehr - Planungs- und Steuerungssysteme für
Straßenfahrzeuge - Teil 8: Physikalische Schicht für IP-Kommunikation;
Englische Fassung CEN/TS 13149-8:2013 /

Public transport - Road vehicle scheduling and control systems - Part
8: Physical layer for IP communication

- (3) VDV 301-1 Internetprotokoll basiertes integriertes Bordinformationssystem IBIS-
IP - Teil 1: Systemarchitektur /

VDV 301-1: IBIS-IP, Part 1: System architecture

- (4) /VDV 301-2 Internetprotokoll basiertes integriertes Bordinformationssystem IBIS-
IP - Teil 2: Schnittstellenspezifikation /

VDV 301-2: IBIS-IP, Part 2: Interface Specification V1.0

Tabellenverzeichnis

Table 1	Description of AdditionalAnnouncement	14
Table 2	Description of Announcement	14
Table 3	Description of BayArea	14
Table 4	Description of BeaconPoint	15
Table 5	Description of CardApplInformation	15
Table 6	Description of CardTicketData	15
Table 7	Description of CardType	15
Table 8	Description of Connection	16
Table 9	Description of DataAcceptedResponse	16
Table 10	Description of DataAcceptedResponseData	16
Table 11	Description of DataVersion	17
Table 12	Description of DataVersionList	17
Table 13	Description of Destination	17
Table 14	Description of DeviceInformation	17
Table 15	Description of DeviceSpecification	18
Table 16	Description of DeviceSpecificationList	18
Table 17	Description of DeviceSpecificationWithState	18
Table 18	Description of DeviceSpecificationWithStateList	18
Table 19	Description of DisplayContent	19
Table 20	Description of DoorCounting	19
Table 21	Description of DoorCountingList	19
Table 22	Description of DoorInformation	20
Table 23	Description of DoorOpenState	20
Table 24	Description of DoorOperationState	20
Table 25	Description of DoorState	20
Table 26	Description of FareZoneInformation	21
Table 27	Description of GlobalCardStatus	21
Table 28	Description of GNSSPoint	21
Table 29	Description of GNSSCoordinate	21
Table 30	Description of JourneyStopInformation	22
Table 31	Description of LineInformation	22
Table 32	Description of LogMessage	22

Table 33	Description of Message	23
Table 34	Description of Point	23
Table 35	Description of PointSequence	23
Table 36	Description of PointType	23
Table 37	Description of ServiceIdentification	24
Table 38	Description of ServiceIdentificationWithState	24
Table 39	Description of ServiceIdentificationWithStateList	24
Table 40	Description of ServiceInformation	24
Table 41	Description of ServiceInformationList	24
Table 42	Description of ServiceSpecification	25
Table 43	Description of ServiceSpecificationWithState	25
Table 44	Description of ServiceSpecificationWithStateList	25
Table 45	Description of ServiceStart	25
Table 46	Description of ServiceStartList	26
Table 47	Description of ShortTripStop	26
Table 48	Description of ShortTripStopList	26
Table 49	Description of SpecificPoint	26
Table 50	Description of StopInformation	27
Table 51	Description of StopInformationRequest	27
Table 52	Description of StopInformation	28
Table 53	Description of StopSequence	28
Table 54	Description of SubscribeRequest	28
Table 55	Description of SubscribeResponse	28
Table 56	Description of TimingPoint	28
Table 57	Description of TripInformation	29
Table 58	Description of TripSequence	29
Table 59	Description of TSPPoint	29
Table 60	Description of UnsubscribeRequest	30
Table 61	Description of UnsubscribeResponse	30
Table 62	Description of Vehicle	30
Table 63	Description of ViaPoint	30
Table 64	Description of ZoneType	31
Table 65	Description of ConnectionStateEnumeration	32
Table 66	Description of ConnectionTypeEnumeration	32
Table 67	Description of DataIntervalEnumeration	32

Table 68	Description of DeviceClassEnumeration	32
Table 69	Description of DeviceStateEnumeration	33
Table 70	Description of DeviceTaskEnumeration	33
Table 71	Description of DoorCountingObjectClassEnumeration	33
Table 72	Description of DoorCountingQualityEnumeration	33
Table 73	Description of DoorOpenStateEnumeration	33
Table 74	Description of DoorOperationStateEnumeration	34
Table 75	Description of ErrorCodeEnumeration	34
Table 76	Description of ExitSideEnumeration	34
Table 77	Description of GNSSCoordinateSystemsEnumeration	34
Table 78	Description of GNSSQualityEnumeration	35
Table 79	Description of GNSSTypeEnumeration	35
Table 80	Description of JourneyModeEnumeration	35
Table 81	Description of LocationStateEnumeration	35
Table 82	Description of MessageTypeEnumeration	35
Table 83	Description of RouteDeviationEnumeration	36
Table 84	Description of RouteDirectionEnumeration	36
Table 85	Description of ServiceNameEnumeration	36
Table 86	Description of ServiceStateEnumeration	36
Table 87	Description of SystemDocumentationInformationEnumeration	37
Table 88	Description of TicketRazzialInformationEnumeration	37
Table 89	Description of TicketValidationEnumeration	37
Table 90	Description of VehicleModeEnumeration	37

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