



Foto: Max Lautenschläger

Billing

Invoice XML Data

XML data
Version 2.00 (valid from January 31, 2013)

Invoice Data

Description

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1 Invoice data in XML structure

1.1 General

The **Extensible Markup Language**, or **XML** for short, is a mark-up language for visualizing hierarchic data as text data. DB Cargo uses the XML standard to supply invoice data and supplementary invoice data.

The following chapters describe the data in XML format (cpi_fakt) together with the used data types (cpi_types). An XML file always represents exactly one invoice.

Note for the English translation: the functional data types respectively tag names are stated in German.

1.2 Basic structure of the supplementary invoice data

The following schema gives a rough overview of supplementary invoice data:

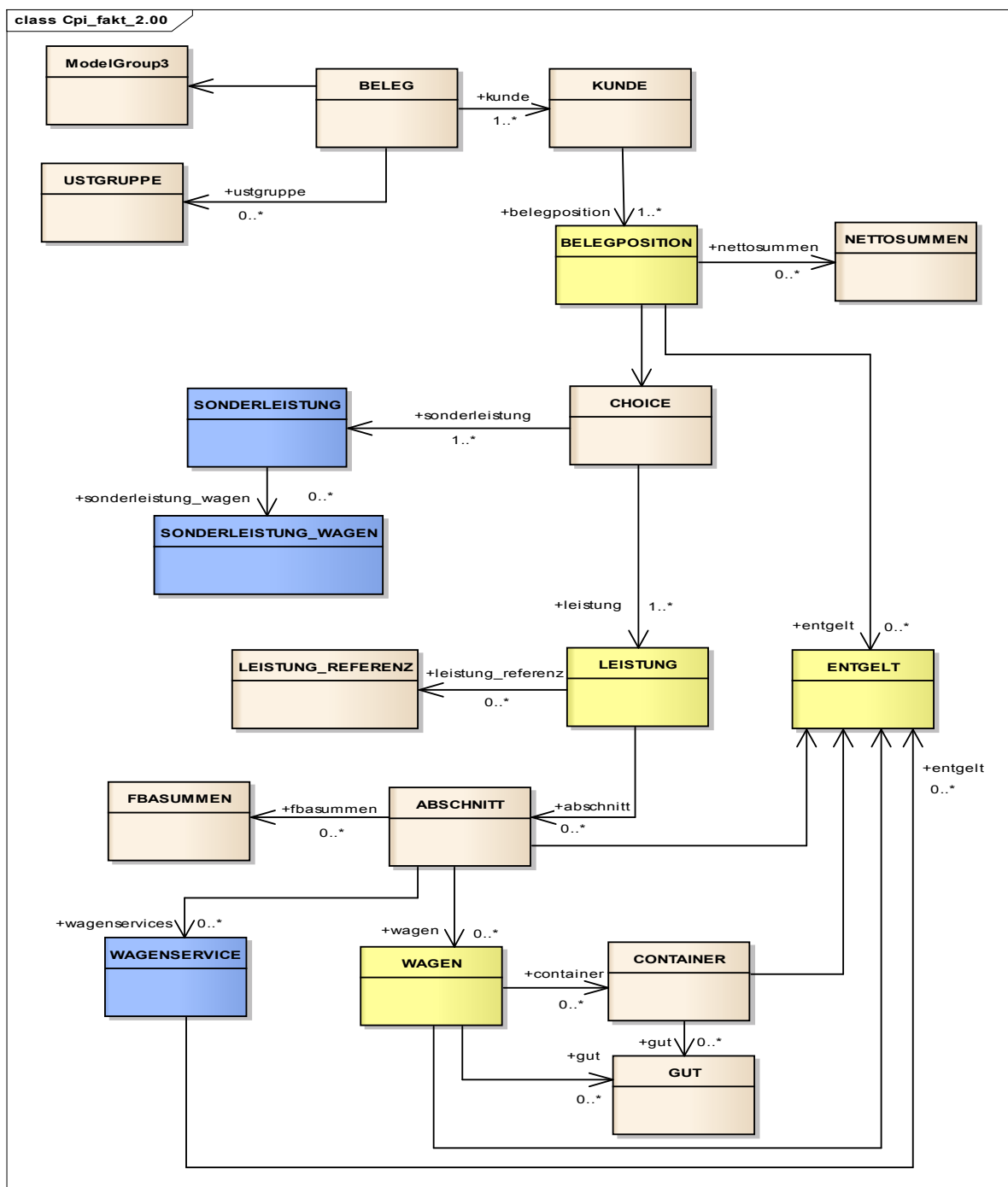


Fig. 1: Structure of the XML schema (new nodes are shown in blue, changed nodes in yellow)
The data types used in the XML schema are explained below.

Additions made in Version 2.00 compared to version 1.16/1.17 are marked in colour.

Data type	Description of the data type
BELEG (VOUCHER)	With Type "BELEG" the hierarchic XML-structure is getting started. This type is the XML-root. A VOUCHER basically contains the head data of an invoice, including recipient, invoice date and period together with the total amount. Vouchers are separated in "pure type classification" according to transport services and non-transport services (SPECIAL SERVICE). A voucher therefore only contains the one or other type of services; the same applies accordingly to the voucher items. The voucher makes reference to the corresponding VOUCHER ITEMS.
USTGRUPPE (VAT GROUP)	The VAT GROUP contains the sum of all FEES of a VOUCHER, grouped together according to value added tax groups. The sum of all VAT groups results in the total amount shown in the VOUCHER.
BELEGPOSITION (VOUCHER ITEM)	A voucher can have several VOUCHER ITEMS, but must have at least one. A VOUCHER ITEM groups together one or several services. Either SERVICES or SPECIAL SERVICES can be assigned to a VOUCHER ITEM. The services are separated in "pure type classification" according to transport services and non-transport services, so that the quantity of voucher items belonging to the same voucher always only encompasses the one or other service type.
NETTOSUMMEN (NET AMOUNTS)	NET AMOUNTS contains the amount of all net FEES of a VOUCHER ITEM, grouped according to VAT groups.
LEISTUNG (SERVICE)	SERVICES are provided as transport services and/or other services, e.g. support services. Exactly one VOUCHER ITEM is assigned to each service. SERVICES can encompass several SEGMENTS.
SONDERLEISTUNG (SPECIAL SERVICE)	A SPECIAL SERVICE is a service that is not transport-related. This refers to services that have no consignment label. SPECIAL SERVICES can also include .pdf files as attachment. Separate vouchers are generated for SPECIAL SERVICES (transport-unrelated services).
SONDERLEISTUNG_ WAGEN (SPECIAL SERVICE_ WAGON)	0..n wagons filling the SPECIAL SERVICE_WAGON list can be allocated to a special service.
LEISTUNG_REFERENZ (SERVICE_ REFERENCE)	SERVICE_REFERENCE contains supplementary information about the service, information that does not always have to be present. It can feature for example the consignor reference from the consignment note.
ABSCHNITT (SEGMENT)	We distinguish between segment types (global, average and ancillary or service fee segment). The key attributes of the SEGMENT are the country and station of departure, the destination country and station, used tariff/contract/customer agreement. SEGMENT can refer to FEE
FBASUMMEN (FBA AMOUNTS)	FBA AMOUNTS contains the sum of all FEES of the SEGMENT, grouped together according to VAT groups.
ENTGELT (FEE)	FEE contains monetary evaluations in the form of one or several FEES that are incurred for <ul style="list-style-type: none"> - a VOUCHER ITEM altogether (i.e. 1..n services) and/or - a freight calculation SEGMENT and/or - a WAGON and/or - a WAGON SERVICE and/or - a container. It is therefore possible to refer to a fee from each of the stated nodes.
WAGEN (WAGON)	This refers to the WAGON that transports a certain CARGO or CONTAINER. The characteristic features of a wagon are the wagon number and classification code. Depending on the contractual agreement, no, one or several wagons can be assigned to a SEGMENT. A

	WAGON contains either CARGO or CONTAINERS or neither CARGO nor CONTAINERS. WAGON can refer to FEE.
GUT (CARGO)	CARGO refers to the goods being transported. CARGO is always identified by its NHM number. CARGO is carried by the wagon.
CONTAINER (CONTAINER)	CONTAINERS are always transported on a wagon and can contain CARGO. The characteristic feature of the CONTAINER is the container number and its classification. CONTAINER can refer to FEE.
WAGENSERVICE (WAGON SERVICE)	WAGON SERVICE contains information for the transfer of a railway-owned wagon outside the loading or unloading time (loading period) and refers to the incurred FEE.

The following page shows a diagram of the inner structure of the XML voucher including the new nodes "special service" and "wagon service".

These new nodes are shown in **blue**. Already existing, supplemented nodes are shown in **yellow**. Attributes newly added to these nodes are summarized under "new_in_2.00".

The individual attributes are described in the following chapters on the individual nodes.

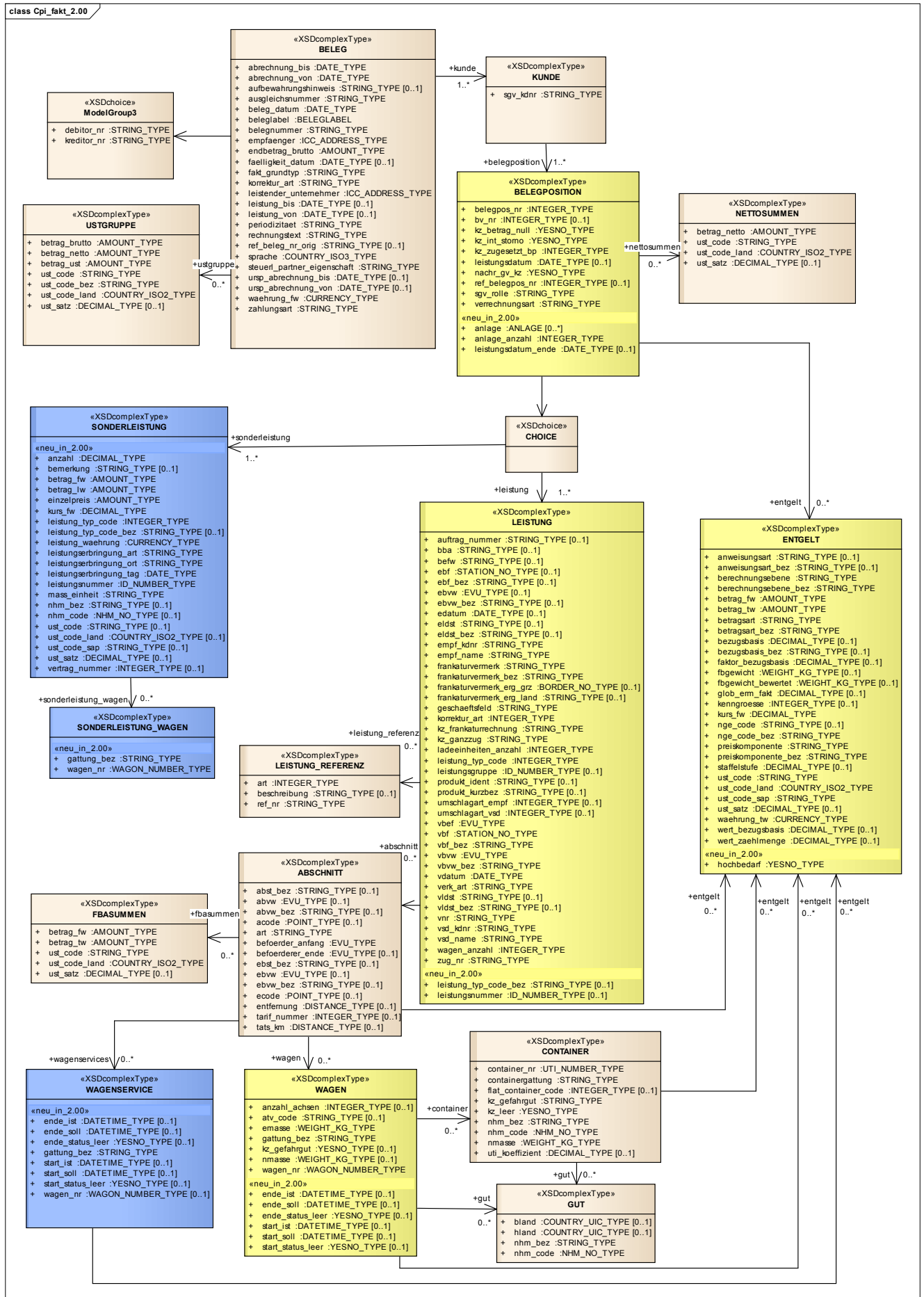


Fig. 2: Detailed structure of the XML schema (new nodes are shown in blue, changed nodes in yellow)

1.3 XML nodes

Chapters 1.3 and 1.4 describe the used XML nodes with their attributes. The XMI schema of supplementary invoice data consisting of the schema files "cpi_fakt" and "cpi_types" is binding for technical implementation

1.3.1 BELEG node

The hierarchic XML-structure is getting started with Type "BELEG". This is visible in the XSD [cpi_fakt_2.00.xsd](#), row 13. This type is the XML-root.

Tag	Data type	Optional	Description
ausgleichsnummer (clearing number)	STRING_TYPE		Clearing number
waehrung_fw (currency)	CURRENCY_TYPE		Invoicing/voucher currency
belegnummer (voucher number)	STRING_TYPE		Voucher/invoice number
periodizitaet (period type)	STRING_TYPE		Invoicing period: 5 - by the decade
abrechnung_von (invoicing from)	DATE_TYPE		Start of the invoicing period
leistung_von (service from)	DATE_TYPE	X	(for internal use)
abrechnung_bis (invoicing to)	DATE_TYPE		End of the invoicing period
leistung_bis (service to)	DATE_TYPE	X	(for internal use)
ursp_abrechnung_von (original invoicing from)	DATE_TYPE	X	For correction invoices: start of the original invoicing period
ursp_abrechnung_bis (original invoicing to)	DATE_TYPE	X	For correction invoices: end of the original invoicing period
beleg_datum (voucher date)	DATE_TYPE		Invoicing date
faelligkeit_datum (due date)	DATE_TYPE	X	Due date
ref_beleg_nr_orig (ref. original voucher no.)	STRING_TYPE	X	Assignment number for correction invoices. Reference to first original invoice
debitor_nr (debitor no.)	STRING_TYPE		Debitor number
endbetrag_brutto (gross final amount)	AMOUNT_TYPE		Gross final amount
fakt_grundtyp (basic type)	STRING_TYPE		(for internal use)
korrektur_art (correction type)	STRING_TYPE		Correction type 1 = First charging 2 = Correction charging 3 = (for internal use)

sprache (language)	COUNTRY_ISO3_TYPE		Language for issuing the invoice (3-digit ISO code)
zahlungsart (mode of payment)	STRING_TYPE		Type of payment method 1 = FAV
steuerpartner_eigenschaft (fiscal partner attribute)	STRING_TYPE		Code indicating whether the company belongs to the DB Group 1: not member of the client's fiscal group 2: member of the client's fiscal group 3: client's organizational unit 4: NATO Forces
leistender_unternehmer (providing company)	ICC_ADDRESS_TYPE		Providing company (issuing the voucher/invoice) (see node ICC_ADDRESS_TYPE)
empfaenger (recipient)	ICC_ADDRESS_TYPE		Service recipient (receiving voucher/invoice) (see node ICC_ADDRESS_TYPE)
kunde (customer)	KUNDE		1-n customer nodes (see KUNDE node)
ustgruppe (VAT group)	USTGRUPPE		1-n nodes for amounts per VAT group (see USTGRUPPE node)
aufbewahrungshinweis (storage)	STRING_TYPE	X	Possibly customer-specific special text from master data
rechnungstext (invoice text)	STRING_TYPE		Various texts, e.g. "The invoice amount will be settled from your freight settlement account with DVB Bank" .
beleglabel (voucher label)	BELEGLABEL	X	More texts with information

1.3.2 USTGRUPPE node

Tag	Data type	Optional	Description
ust_code (VAT code)	STRING_TYPE		Value added tax code
ust_code_land (VAT code country)	COUNTRY_ISO2_TYPE		Code of the country where VAT is incurred
ust_code_bez (VAT code meaning)	STRING_TYPE		Meaning of the VAT code
betrag_netto (net amount)	AMOUNT_TYPE		Net amount (without VAT)
betrag_ust (VAT amount)	AMOUNT_TYPE		Amount of value added tax
betrag_brutto (gross amount)	AMOUNT_TYPE		Gross amount
ust_satz (VAT rate)	DECIMAL_TYPE	X	Rate of value added tax

1.3.3 KUNDE node

Tag	Data type	Optional	Description
sgv_kdnr (SGV customer no.)	STRING_TYPE		SGV customer number
belegposition (voucher item)	BELEGPOSITION		1-n nodes for voucher items (see BELEGPOSITION node)

1.3.4 BELEGPOSITION node

Tag	Data type	Optional	Description
ref_belegpos_nr (ref. voucher item no.)	INTEGER_TYPE	X	Original voucher/invoice item number of the first invoice
belegpos_nr (voucher item number)	INTEGER_TYPE		Voucher/invoice item number
kz_int_storno (int canc code)	STRING_TYPE		(for internal use)
sgv_rolle (SGV role)	STRING_TYPE		Role of the freight payer 1 - Freight payer: consignor 2 - Freight payer: consignee 8 - Freight payer 9 - Freight payer: transit 17 - Consignor 18 - Consignee
verrechnungsart (type of charging)	STRING_TYPE		00 - Standard valuation origin (default) 05 - Other valuation origin 06 - Transport-independent valuation origin
nachr_gv_kz (reporting transaction code)	YESNO_TYPE		Code for reporting transaction Y: reporting transaction N: non-reporting transaction (default)
kz_zugesetzt_bp (added voucher item code)	INTEGER_TYPE		Code for identifying added voucher items 0 = normal voucher item 1 = added voucher item from a service group
kz_betrag_null (zero amount code)	YESNO_TYPE		Code whether all voucher item fees have value 0 or no voucher item fee present
bv_nr (contract no.)	INTEGER_TYPE	X	(for internal use) Optional box for possibly existing additional contract numbers
leistungsdatum (service date)	DATE_TYPE	X	Date of providing the service
leistungsdatum_ende (service date_end)	DATE_TYPE	X	End of service (only filled for valuation origin 06)
leistung/sonderleistung (service/special service)	LEISTUNG /SONDERLEISTUNG		Either 1 - n nodes for services (see LEISTUNGEN nodes) or

			1 - n nodes for special services (see SONDERLEISTUNG nodes)
nettосummen (net amounts)	NETTOSUM- MEN		0 - n nodes for net amounts (1 node per VAT group) (see NETTOSUMMEN nodes)
entgelt (fee)	ENTGELT		0 - n nodes for fees (see ENTGELTE nodes)
anlage (attachment)	ANLAGE	X	0-n .pdf documents (as supplementary attachments to voucher item/special service)
anlage_anzahl (number of attachments)	INTE- GER_TYPE	X	Number of attachments to the voucher item

1.3.5 NETTOSUMMEN nodes

Tag	Data type	Op- tional	Description
ust_code (VAT code)	STRING_TYPE		Value added tax code
ust_code_land (VAT code country)	COUNTRY_ ISO2_TYPE		Code of the country where VAT is incurred
betrag_netto (net amount)	AMOUNT_TYP E		Net amount
ust_satz (VAT rate)	DECIMAL_ TYPE	X	Rate of value added tax

1.3.6 LEISTUNG node

Tag	Data type	Op- tional	Description
vsd_kdnr (consignor customer no.)	STRING_TYPE		Consignor customer number
vsd_name (consignor name)	STRING_TYPE		Name of the consignor
empf_kdnr (consignee customer no.)	STRING_TYPE		Consignee customer number
empf_name(consignee name)	STRING_TYPE		Name of the consignee
leistungsnummer (service number)	ID_NUMBER_ TYPE	X	Service number of the service in the system
leistungsgruppe (service group)	ID_NUMBER_ TYPE	X	Service group number of the service, insofar as the service belongs to a service group
leistung_typ_code (service type code)	INTEGER_ TYPE		Code for the service type: 1 = Transport service 2 = Support service
leistung_typ_code_bez (service type code name)	STRING_TYPE	X	Verbal name of the service type code

geschaeftsfeld (business unit)	STRING_TYPE		Business unit: 1 = wagon-load traffic 2 = intermodal traffic
vbef (carrier)	EVU_TYPE		Forwarding carrier / departure carrier
vnr (transit number)	STRING_TYPE		Transit number (without check digit)
frankaturvermerk (payment note code)	STRING_TYPE		Code for the payment note
frankaturvermerk_bez (payment note meaning)	STRING_TYPE		Meaning of the payment note
frankaturvermerk_erg_grz (payment note supplement free to border)	BORDER_NO_TYPE	X	Supplement to the payment note free to the border
frankaturvermerk_erg_land (payment note supplement free to border of the country)	STRING_TYPE	X	Supplement to the payment note free to the border of the country
auftrag_nummer (order number)	STRING_TYPE	X	Order number
befw (consignment route)	STRING_TYPE	X	Code for the consignment route (as per agreement or basic international tariff)
bba (carriage type code)	STRING_TYPE	X	Code for the carriage type (digits 1 to 6 for internal use)
produkt_ident (product ID)	STRING_TYPE	X	Product ID
produkt_kurzbez (product code)	STRING_TYPE	X	Product code
wagen_anzahl (number wagons)	INTEGER_TYPE		Number of wagons
ladeeinheiten_anzahl (number load units)	INTEGER_TYPE		Number of load units
zug_nr (train no.)	STRING_TYPE		Train number
kz_ganzzug (block train code)	STRING_TYPE		Consignment type: 0 = single wagon, a wagon at a service, no service group 1 = block train, more than one wagon and block train price 2 = more than one wagon and no block train price

verk_art (traffic type)	STRING_TYPE		Traffic type 1 = Internal traffic 2 = Import 3 = Export 4 = Transit 5 = Support service 6 = International traffic (outside Germany)
vbw (consignment beg.)	EVU_TYPE		Territorial view at start of consignment, e.g. 0080 (80 = country code for Germany)
vbw_bez (consignment beg. name)	STRING_TYPE		Verbal name of country where consignment begins (in German)
vbf (forwarding station)	STATION_NO_TYPE		Forwarding station
vbf_bez (forwarding station name)	STRING_TYPE		Forwarding station name
vldst (forwarding yard)	STRING_TYPE	X	Forwarding yard
vldst_bez (forwarding yard name)	STRING_TYPE	X	Forwarding yard name
vdatum (forwarding date)	DATE_TYPE		Forwarding date
ebvw (consignment end)	EVU_TYPE	X	Territorial view at end of consignment, e.g. 0080 (80 = country code for Germany)
ebvw_bez (consignment end name)	STRING_TYPE	X	Verbal name of country where consignment ends (in German)
ebf (receiving station)	STATION_NO_TYPE	X	Receiving station
ebf_bez (receiving station name)	STRING_TYPE	X	Receiving station name
eldst (receiving yard)	STRING_TYPE	X	Receiving yard
eldst_bez (receiving yard name)	STRING_TYPE	X	Receiving yard name
edatum (receiving date)	DATE_TYPE	X	Receiving date or date of crossing German border
kz_frakaturrechnung (recharge note code)	STRING_TYPE		Code for recharge note from abroad (default: N)
korrektur_art (correction type)	INTEGER_TYPE		Correction type 1: Cancellation 2: New invoicing (default)

umschlagart_vsd (transshipment type code)	INTEGER_TYPE	X	Code for transshipment type 0 = No transshipment 1 = Transfer from/to port without inland waterway transshipment 2 = Reconsignment at German yard (import/export) 3 = Reconsignment, pre-/post carriage (inland transportation) 4 = Import/export inland waterway transshipment 5 = via inland waterway transshipment center 6 = by sea 7 = via land border by rail (only for reconsignment at German border crossing station) 8 = by truck
umschlagart_empf (receiving transshipment code)	INTEGER_TYPE	X	Receiving transshipment type (for meaning see umschlagart_vsd)
abschnitt (segment)	ABSCHNITT		0 - n nodes for segments (see SEGMENT nodes)
leistung_referenz (service reference)	LEISTUNG_REFERENZ		0 - n nodes for references (see LEISTUNG_REFERENZ node)

1.3.7 LEISTUNG_REFERENZ node

Tag	Data type	Optional	Description
art(type)	INTEGER_TYPE		Type of reference; example: <art>1
ref_nr(ref. no.)	STRING_TYPE		Details of reference contents, e.g.: AB123/9 Z
beschreibung (description)	STRING_TYPE	X	Verbal description of reference type; example if <art>1 <consignor reference>

1.3.8 ABSCHNITT node

Tag	Data type	Optional	Description
befoerder_anfang (beg. carrier)	EVU_TYPE		Carrier code at the start of the segment
befoerderer_ende (end carrier)	EVU_TYPE	X	Carrier code at the end of the segment
tats_km (actual km)	DISTANCE_TYPE	X	Actual distance in km
entfernung (distance)	DISTANCE_TYPE	X	Distance in km as per DIUM

art (type)	STRING_TYPE		Type of segment 1 = single 2 = global, 3 = intermediate costs
abvw (FBA beg.)	EVU_TYPE	X	Territorial view at FBA start, e.g. 0080 (80 = country code for Germany)
abvw_bez (name)	STRING_TYPE	X	Verbal name for abvw
acode (code)	POINT_TYPE	X	Contains either 3-digit border code or 6-digit yard code plus country
abst_bez (yard name)	STRING_TYPE		Verbal name of the yard
ebvw (consignment end)	EVU_TYPE	X	Territorial view at FBA end; e.g. 0080 (80 = country code for Germany)
ebvw_bez (consignment end name)	STRING_TYPE	X	Verbal name for consignment end
ecode (code)	POINT_TYPE	X	Contains either 3-digit border code or 6-digit yard code plus country
ebst_bez (yard name)	STRING_TYPE	X	Verbal name of the yard
tarif_nummer (tariff number)	INTE- GER_TYPE	X	Tariff number of applicable tar- iff/agreement
wagen (wagon)	WAGEN	X	0 - n nodes for wagon (see WAGEN node)
fbasummen (FBA amounts)	FBASUMMEN (FBA AMOUNTS)	X	0 - n nodes for segment amounts per VAT group (see FBASUMMEN node)
entgelt (fee)	ENTGELT	X	0 - n nodes for fees (see FEE node)

1.3.9 FBASUMMEN node

Tag	Data type	Op- tional	Description
ust_code (VAT code)	STRING_TYPE		Value added tax code
ust_code_land (VAT code country)	COUN- TRY_ISO2_TY PE		Code of the country where VAT is incurred
betrag_tw (tariff currency amount)	AMOUNT_TYP E		Amount in tariff currency
betrag_fw (invoice currency amount)	AMOUNT_ TYPE		Amount in invoice currency
ust_satz(VAT rate)	DECI- MAL_TYPE	X	Rate of value added tax

1.3.10 WAGEN node

Tag	Data type	Optional	Description
gattung_bez (wagon type code)	STRING_TYPE		Describes the type of wagon
anzahl_achsen (no. axles)	INTEGER_TYPE	X	Number of axles
wagen_nr (wagon no.)	WAGON_NUMBER_TYPE		Wagon number
atv_code (dev code)	STRING_TYPE	X	Deviating tariff code
emasse (own mass)	WEIGHT_KG_TYPE		Own weight of wagon in kg (without load)
nmasse (act mass)	WEIGHT_KG_TYPE	X	Actual mass in kg
kz_gefahrgut (dang goods code)	STRING_TYPE	X	Code for dangerous goods
container	CONTAINER	X	0 - n nodes for container (see CONTAINER node)
gut (cargo)	GUT	X	0 - n nodes for cargo (see CARGO node)
entgelt (fee)	ENTGELT	X	0 - n nodes for fees (see FEE node)
start_soll (nominal start)	DATE-TIME_TYPE	X	Example: start of loading period
start_ist (actual start)	DATE-TIME_TYPE	X	Example: actual starting time of loading period
ende_soll (nominal end)	DATE-TIME_TYPE	X	Example: end of loading period
ende_ist (actual end)	DATE-TIME_TYPE	X	Example: actual end of loading period
start_status_leer (empty status at start)	YESNO_TYPE	X	Loading status at start of wagon use
ende_status_leer (empty status at end)	YESNO_TYPE	X	Loading status at end of wagon use

1.3.11 WAGENSERVICE node

Tag	Data type	Optional	Description
gattung_bez (wagon type code)	STRING_TYPE		Describes the type of wagon
wagen_nr (wagon no.)	WAGON_NUMBER_TYPE	X	Wagon number
entgelt (fee)	ENTGELT	X	0 - n nodes for fees (see FEE node)

start_soll (nominal start)	DATE- TIME_TYPE	X	Example: start of loading period
start_ist (actual start)	DATE- TIME_TYPE	X	Example: actual starting time of load- ing period
ende_soll (nominal end)	DATE- TIME_TYPE	X	Example: end of loading period
ende_ist (actual end)	DATE- TIME_TYPE	X	Example: actual end of loading period
start_status_leer (empty status at start)	YESNO_TYPE	X	Loading status at start of wagon use
ende_status_leer (empty status at end)	YESNO_TYPE	X	Loading status at end of wagon use

1.3.12 CONTAINER node

Tag	Data type	Op- tional	Description
container_nr (container no.)	UTI_NUMBER_ TYPE		Container number incl. container pre- fix
containergattung (container type)	STRING_TYPE		Code for container types, swap bod- ies, piggyback traffic and other con- tainers
nhm_code	NHM_NO_ TYPE		NHM cargo type code relevant to freight invoicing
nhm_bez (NHM name)	STRING_TYPE		Name of NHM code (max 56 characters)
kz_leer (empty)	YESNO_TYPE		Y = empty N = not empty
uti_koeffizient (UTI coefficient)	DECIMAL_ TYPE	X	UTI coefficient for tariff calculation
flat_container_code	INTEGER_ TYPE	X	Flat container code
nmasse (act mass)	WEIGHT_KG_ TYPE		Actual mass in kg
kz_gefahrgut (dang goods code)	STRING_TYPE		Code for dangerous goods
gut (cargo)	GUT	X	0 - n nodes for cargo (see CARGO node)
entgelt (fee)	ENTGELT	X	0 - n nodes for fees (see FEE node)

1.3.13 GUT node

Tag	Data type	Op- tional	Description
nhm_code	NHM_NO_ TYPE		NHM cargo code
nhm_bez (NHM name)	STRING_TYPE		Name of the NHM code
hland (country of origin)	COUNTRY_ UIC_TYPE	X	Original country of origin
bland (destination)	COUNTRY_ UIC_TYPE	X	Final country of destination

1.3.14 ENTGELT node

Tag	Data type	Op- tional	Description
betragart (amount type)	STRING_TYPE		Amount type 1 = freight and surcharges 3 = ancillary fee in addition to tariff
betragart_bez (amount name)	STRING_TYPE		Verbal name of the amount type
preiskomponente (price component)	STRING_TYPE		Classification of amount type (e.g. basic freight, railway wagon surcharge ...)
berechnungsebene (calculation level)	STRING_TYPE	X	Classification of the calculation level as price component G = block train W = wagon U = container
nge_code (ancillary fee code)	STRING_TYPE	X	Support service/ancillary fee code
preiskomponente_bez (price component name)	STRING_TYPE		Verbal name of the price component
berechnungsebene_bez (calculation level name)	STRING_TYPE		Verbal name of the calculation level
nge_code_bez (ancillary fee code name)	STRING_TYPE		Verbal name of the ancillary fee code
waehrung_tw (tariff currency)	CURRENCY_TYPE		Tariff currency
kurs_fw (currency rate)	DECIMAL_TYPE		Exchange rate tariff currency to invoice currency
betrag_fw (invoice currency amount)	AMOUNT_TYPE		Amount in invoice currency
betrag_tw (tariff currency amount)	AMOUNT_TYPE		Amount in tariff currency
ust_code (VAT code)	STRING_TYPE		Value added tax code
ust_code_land (VAT code country)	COUNTRY_ISO2_TYPE		Code of the country where VAT is incurred
ust_code_sap (SAP VAT code)	STRING_TYPE	X	Value added tax code in SAP
ust_satz (VAT rate)	DECIMAL_TYPE	X	Rate of value added tax
fbgewicht (freight calculation weight)	WEIGHT_KG_TYPE	X	Freight calculation weight subject to tariff as per consignment note (kg)

fbgewicht_bewertet (evaluated freight calculation weight)	WEIGHT_KG_TYPE	X	Evaluated freight calculation weight (kg) after application of various parameters
bezugsbasis (ref. basis)	DECIMAL_TYPE	X	Reference basis for the fee: 1 = wagon 2 = UTI 3 = tons 4 = train 5 = meters (LOB) 6 = number of axles 7 = tons (actual) 8 = day
bezugsbasis_bez (ref. basis name)	STRING_TYPE		Verbal name of the reference basis
wert_bezugsbasis (ref. basis value)	DECIMAL_TYPE	X	Value of the reference basis (train = 1, otherwise corresponding value, e.g. number of tons, number of wagons, number of UTI, ...)
faktor_bezugsbasis (factor ref. basis)	DECIMAL_TYPE	X	Factor for multiplying the value of the reference basis
glob_erm_fakt (global reduction factor)	DECIMAL_TYPE	X	Global reduction factor as a percentage
kenngroesse (integer type)	INTEGER_TYPE	X	Integer type for counted quantities: 9010 = wagons 9020 = tons 9030 = consignments 9120 = km (on system railway segment)
wert_zaeahlmenge (counted quantity)	DECIMAL_TYPE	X	Current status of counted quantity
staffelstufe (scale step)	DECIMAL_TYPE	X	Exceeded scale step when rules depend on counted quantity
anweisungsart (instruction type)	STRING_TYPE	X	Type of instruction: DTA = delta without counted quantity PFR = percentage of freight without counted quantity WRT = single value without counted quantity ZMB = rate with counted quantity ZMD = delta with counted quantity ZMW = single value with counted quantity NBP = percentage of NGE without counted quantity NBM = maximum NGE without counted quantity ZNP = percentage of NGE with counted quantity ZNM = maximum NGE with counted quantity

anweisungsart_bez (instruction type name)	STRING_TYPE	X	Verbal name of the instruction type
hochbedarf (high demand)	YESNO_TYPE	X	Code whether wagon in high demand when referring to wagon demurrage

1.3.15 SONDERLEISTUNG node

Tag	Data type	Optional	Description
leistung_typ_code (service type code)	INTEGER_TYPE		Code for the service type: 100 = transport-independent service
leistung_typ_code_bez (service type code name)	STRING_TYPE	X	Verbal name of the service type code
leistungserbringung_tag (service provision day)	DATE_TYPE		Service date/day of service provision
leistungserbringung_ort (service provision place)	STRING_TYPE		Place of service provision (place of fulfillment)
leistungserbringung_art (service provision type)	STRING_TYPE		Description of the provided service
leistung_waehrung (service currency)	CURRENCY_TYPE		Service currency, possibly unequal to voucher currency
mass_einheit (unit of measurement)	STRING_TYPE		Description of the unit of measurement
nhm_code	NHM_NO_TYPE	X	NHM cargo code
nhm_bez (NHM name)	STRING_TYPE	X	Name of the NHM code
anzahl (quantity)	DECIMAL_TYPE		Quantity of the unit of measurement
einzelpreis (unit price)	AMOUNT_TYPE	X	Unit price, if available
kurs_fw (invoice currency rate)	DECIMAL_TYPE		Exchange rate tariff currency to invoice currency
betrag_fw (invoice currency amount)	AMOUNT_TYPE		Amount of the service in voucher currency
betrag_lw (amount service currency)	AMOUNT_TYPE		Amount of the service in agreed currency
ust_code (VAT code)	STRING_TYPE		Value added tax code
ust_code_sap (SAP VAT code)	STRING_TYPE	X	SAP tax code
ust_satz (VAT rate)	DECIMAL_TYPE	X	Tax rate
ust_code_land (VAT code country)	COUNTRY_ISO2_TYPE	X	Code of the country where VAT is incurred
bemerkung (remark)	STRING_TYPE	X	Remark possibly recorded
leistungsnummer (service number)	ID_NUMBER_TYPE	X	Service number of the service in the system

vertrag_nummer (agreement number)	INTEGER_ TYPE	X	Number of the applied agreement
sonderleistung_wagen (special service wagon)	SONDERLEIS- LEIS- TUNG_WAGEN	X	0 - n nodes for special service wagon (see SONDERLEISTUNG_WAGEN node)

1.3.16 SONDERLEISTUNG_WAGEN node

Tag	Data type	Op- tional	Description
wagen_nr (wagon no.)	WAGON_NUM- BER_TYPE	X	Wagon number
gattung_bez (wagon type code)	STRING_TYPE	X	Describes the type of wagon

1.4 Type definitions

Central type definitions have been stipulated for definition of the XML schema for predefinition of the value ranges possibly used in different nodes but with uniform lexical value ranges so that these can undergo appropriate type testing.

The XSD "cpi_types_2.00.xsd" contains the definitions of the data types used in the XML voucher. These are simple or complex types, depending on functionality. The latter consist of data structures (datasets, records)

1.4.1 Simple XSD data types

The following simple types are defined in cpi_types_2.00.xsd:

Name of the type	Description	Format
AMOUNT_TYPE	Represents a numerical value as decimal value (basic data type).	Positive or negative decimal numbers with maximum 12 digits, including two decimal places. <xs:totalDigits value="12"/> <xs:fractionDigits value="2"/>
BORDER_NO_TYPE	Represents a border code.	String of exactly three digits. <xs:pattern value="\d{3}"/>
COUNTRY_ISO2_TYPE	Represents the ISO country code as a two-digit code.	String of capital letters A-Z; either empty or exactly two digits. <xs:pattern value="([A-Z]{2})?"/>
COUNTRY_ISO3_TYPE	Represents the ISO country code as a three-digit code.	String of capital letters A-Z, exactly three digits <xs:pattern value="[A-Z]{3}"/>
COUNTRY_UIC_TYPE	Represents the two-digit code of the UIC country.	Two-digit string of digits: <xs:pattern value="\d{2}"/>
CURRENCY_TYPE	Represents a currency unit in the three-digit ISO code.	String of exactly three capital letters. <xs:pattern value="[A-Z]{3}"/>
DATE_TYPE	Represents a simple date value; corresponds to the XSD type "date".	Date stated in the format YYYY-MM-DD <u>Note:</u> According to the W3 specification, a time offset can also be entered: YYYY-MM-DD±hh:mm This is not used in the XML voucher.

Name of the type	Description	Format
DATETIME_TYPE	Represents a date value with time; used e.g. to calculate loading periods.	Date/time stated in the format YYYY-MM-DDThh:mm:ss YYYY-MM-DDThh:mm:ss.ss (milli-sec.) <u>Note:</u> According to the W3 specification, a time

		offset can also be entered: YYYY-MM-DDThh:mm:ss±hh:mm This is not used in the XML voucher.
DECIMAL_TYPE	General decimal numbers of an accuracy of up to 18 digits.	±[decimal number]
DISTANCE_TYPE	Represents a kilometer distance (integer).	Whole-number digital number with max. 6 digits. <xs:totalDigits value="6"/> <xs:fractionDigits value="0"/>
EVU_TYPE	Represents the four-digit code of an RU.	String of exactly four digits. <xs:pattern value="\d{4}"/>
ICC_SEX_TYPE	Represents the sex type of a person.	List of "M" for male and "F" for female, with only the one or the other type possible. <xs:enumeration value="M"/> <xs:enumeration value="F"/>
ICC_TAX_NUMBER_TYPE	Represents a tax number.	String without format restrictions.
ICC_VAT_ID_TYPE	Represents a VAT tax ID.	String without format defaults with a maximum length of 14 digits. <xs:maxLength value="14"/>
ID_NUMBER_TYPE	Represents a numerical ID.	Positive integer including 0 without format defaults and without value range restriction (apart from limits dictated by the data type "integer"; based on "decimal", therefore max. 18 digits). <xs:minInclusive value="0"/>
INTEGER_TYPE	Represents an integer.	Positive or negative integer without format defaults and without value range restriction (apart from the limits dictated by the data type <i>integer</i> ; based on <i>decimal</i> , therefore maximum 18 digits).
NHM_NO_TYPE	Represents an NHM code (max. 8 digits), NHM codes can have four, six or eight digits.	String of maximum eight digits; four or six digits are also possible. <xs:pattern value="\d{4}"/> <xs:pattern value="\d{6}"/> <xs:pattern value="\d{8}"/>

Name of the type	Description	Format
STATION_NO_TYPE	Represents a station as numerical code (station number).	String with maximum six digits. <xs:pattern value="\d{6}"/>
STRING_TYPE	Represents an alphanumeric string.	String without format defaults.
TARIF_NO_TYPE	Represents a tariff number.	String with maximum six digits.

		<code><xs:pattern value="\d{6}"/></code>
UTI_NUMBER_TYPE	Represents an UTI number (e.g. container number)	String without format defaults.
WAGON_NUMBER_TYPE	Represents a wagon number (without hyphens, purely numerical).	String with maximum 12 digits. <code><xs:pattern value="\d{12}"/></code>
WEIGHT_KG_TYPE	Represents a weight in kilograms.	Positive decimal number including 0 with altogether 12 digits, including four decimal places. <code><xs:totalDigits value="12"/></code> <code><xs:fractionDigits value="4"/></code> <code><xs:minInclusive value="0"/></code>
YESNO_TYE	Represents a "yes/no" flag.	Counts the values "Y" for yes and "N" for no, with either the one or the other value possible. <code><xs:enumeration value="N"/></code> <code><xs:enumeration value="Y"/></code>

1.4.2 Complex XSD data types

Complete types consist of additional simple or complex types and attributes. The following complex types are defined in cpi_types_2.00.xsd:

Name of the type	Description	Format
ANLAGE (attachment)	Structure for including an electronic attachment document: <ul style="list-style-type: none"> ▪ sequence (sequence position of the attachment) ▪ .pdf document (attachment document) The attachment document is entered in the XML in binary code.	<pre><xs:sequence> <xs:element name="reihung" type="xs:string"/> <xs:element name="pdf_dokument" type="xs:base64Binary"/> </xs:sequence></pre>
BELEGLABEL (voucher label)	Structure containing the voucher label and voucher label values: <ul style="list-style-type: none"> ▪ labelname (name of the label) ▪ labelwert (attribute value of the label name) 	<pre><xs:sequence max- Occurs="unbounded"> <xs:element name="labelname" type="STRING_TYPE"/> <xs:element name="labelwert" type="STRING_TYPE"/> </xs:sequence></pre>
ICC_ADDRESS_TYPE	Structure containing address details: <ul style="list-style-type: none"> ▪ party_type (type of service stakeholder, e.g. consignor, consignee) ▪ yellow_post (details for "yellow post" (standard mail)) ▪ e_post (details for electronic post) ▪ phones (phone numbers) 	<pre><xs:sequence> <xs:element name="party_type" type="ICC_PARTY_TYPE"/> <xs:element name="yellow_post" type="ICC_YELLOW_POST_TYPE"/> <xs:element name="e_post" type="ICC_E_POST_TYPE" minOccurs="0"/> <xs:element name="phones" type="ICC_PHONES_TYPE" minOccurs="0"/> </xs:sequence></pre>
ICC_E_POST_TYPE	Structure from attributes that can include data for electronic data exchange: <ul style="list-style-type: none"> ▪ mail (mail address) ▪ fax (fax number) ▪ ftp (name of an FTP server) 	<pre><xs:sequence> <xs:element name="mail" type="xs:string" minOccurs="0"/> <xs:element name="fax" type="xs:string" minOccurs="0"/> <xs:element name="ftp" type="xs:string" minOccurs="0"/> </xs:sequence></pre>
ICC_PARTY_TYPE	Structure containing data about a stakeholder involved in a consignment: <ul style="list-style-type: none"> ▪ company ▪ division ▪ department ▪ vat_number ▪ tax_number ▪ comreg_number (commercial register number) ▪ registry_court 	<pre><xs:sequence> <xs:element name="company" type="STRING_TYPE"/> <xs:element name="division" type="STRING_TYPE" minOccurs="0"/> <xs:element name="department" type="STRING_TYPE" minOccurs="0"/> <xs:element name="vat_number" type="ICC_VAT_ID_TYPE" minOccurs="0"/> <xs:element name="tax_number" type="ICC_TAX_NUMBER_TYPE" minOccurs="0"/> </xs:sequence></pre>

Name of the type	Description	Format
	<ul style="list-style-type: none"> ▪ registered_office ▪ co ▪ person 	<pre><xs:element name="comreg_number" type="ICC_TAX_NUMBER_TYPE" minOccurs="0"/> <xs:element name="registry_court" type="STRING_TYPE" minOccurs="0"/> <xs:element name="registered_office" type="STRING_TYPE" minOccurs="0"/> <xs:element name="co" type="STRING_TYPE" minOccurs="0"/> <xs:element name="person" type="ICC_PERSON_TYPE" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence></pre>
ICC_PERSON_TYPE	<p>Structure containing attributes to a person:</p> <ul style="list-style-type: none"> ▪ sex ▪ role ▪ title (academic or business title) ▪ first_name ▪ last_name 	<pre><xs:sequence> <xs:element name="sex" type="ICC_SEX_TYPE" minOccurs="0"/> <xs:element name="role" type="STRING_TYPE" minOccurs="0"/> <xs:element name="title" type="STRING_TYPE" minOccurs="0"/> <xs:element name="first_name" type="STRING_TYPE"/> <xs:element name="last_name" type="STRING_TYPE"/> </xs:sequence></pre>
ICC_PHONES_TYPE	<p>Structure that can include telecommunication information:</p> <ul style="list-style-type: none"> ▪ fix (landline number) ▪ mobile (mobile number) 	<pre><xs:sequence> <xs:element name="fix" type="xs:string" minOccurs="0"/> <xs:element name="mobile" type="xs:string" minOccurs="0"/> </xs:sequence></pre>
ICC_YELLOW_POST_TYPE	<p>Structure containing information about address details and "yellow post" (standard mail):</p> <ul style="list-style-type: none"> ▪ country_iso (ISO3 country number) ▪ country ▪ zip ▪ city ▪ street ▪ no ▪ state ▪ airmail (shows whether "yellow post" (standard mail) to be sent 	<pre><xs:sequence> <xs:element name="country_iso" type="COUNTRY_ISO3_TYPE" minOccurs="0"/> <xs:element name="country" type="xs:string" minOccurs="0"/> <xs:element name="zip" type="xs:string"/> <xs:element name="city" type="xs:string"/> <xs:element name="street" type="xs:string"/> <xs:element name="no" type="xs:string" minOccurs="0"/> <xs:element name="state" type="xs:string" minOccurs="0"/></pre>

Name of the type	Description	Format
	by airmail)	<pre><xs:element name="airmail" type="YESNO_TYPE" minOccurs="0"/> </xs:sequence></pre>
POINT_TYPE	Represents either a border (see BORDER_NO_TYPE) or a station (see STATION_TYPE).	<pre><xs:choice> <xs:element name="station" type="STATION_TYPE"/> <xs:element name="border" type="BORDER_NO_TYPE"/> </xs:choice></pre>
STATION_TYPE	Structure representing a station in UIC code. It consists of: <ul style="list-style-type: none"> country (see COUNTRY_UIC_TYPE) station (see BORDER_NO_TYPE) 	<pre><xs:sequence> <xs:element name="country" type="COUNTRY_UIC_TYPE"/> <xs:element name="station" type="STATION_NO_TYPE"/> </xs:sequence></pre>

The following diagram shows the structures of the complex types.

