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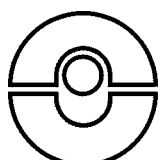
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1st edition, October 1999

Original

Structured (data model) representation of passenger traffic data

*Représentation structurées des données relatives au trafic voyageurs
Strukturierte Darstellung (Datenmodell) der Personenverkehrsdaten*



*Union Internationale des Chemins de fer
Internationaler Eisenbahnverband
International Union of Railways*

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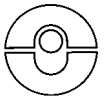
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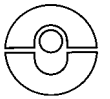
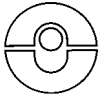


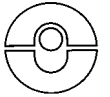
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Summary

This leaflet gives a general and structured overview of passenger traffic data to be included in UIC standard messages for data exchange between UIC railways or between UIC railways and third parties.



1 - Introduction

1.1 - Purpose

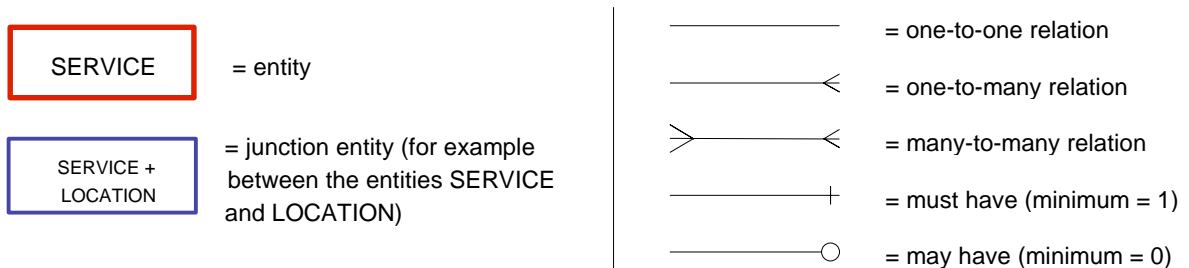
The purpose of this document is to obtain a general and structured overview of passenger traffic data to be included in UIC standard messages for data exchange between UIC railways or between UIC railways and third parties.

1.2 - Methodology

The data model has been drafted in line with the entity/relationship methodology developed by Peter Cheng. It contains:

- a graphical representation or diagram of the data entities and the relations between them;
- a catalogue (with comments and examples) of the entities, attributes and relations.

The following symbols are used in the diagrams:



1.3 - Preliminary remarks

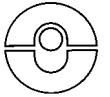
1.3.1 - Codes

In order to avoid language problems and reduce the volume of data transmitted, coded attributes should be used instead of text in so far as possible.

It is also recommended that a single codification system be used for all coded attributes. If this turns out to be impossible, then each attribute, codified in different ways, must be accompanied by a qualifier indicating the code list applied in that particular case.

International Codes (ISO, EDIFACT) (see “List of abbreviations”, on page 49) should be applied for messages to be used to communicate with non-railway partners.

The entity description should only contain the attributes to be inserted in a message.

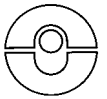


1.3.2 - Description of the entities, relations and attributes

The descriptions of the entities and attributes should contain as many examples as possible. In most cases, the codes given as examples are fictitious.

The tag **ident** after an attribute title means that the attribute is the identifier, i.e. the attribute that uniquely identifies an individual occurrence of the entity.

The tag **relat xxx** after an attribute title means that the attribute points to another entity (xxx being replaced by the title of this related entity).



2 - Bulk exchange of timetable data (TITAN)

2.1 - General

2.1.1 - Scope

The data described in this part of the leaflet relates exclusively to commercial timetables designed to provide information to customers. Infrastructure data, specific to traffic management and control, is not included.

2.1.2 - Basic data versus additional data

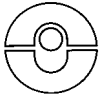
With regard to the timetable data exchanged, two types may be distinguished:

Basic data

- Basic data is the very specific timetable data that must be present in the bulk timetable exchange message. Basic data includes:
- service (train, coach group, etc.) specifications;
- periods of operation;
- departure, arrival and stop-off times at the different locations (stations);
- specification of the sub-location (platform) at which the service arrives and departs;
- breakdown of services (facilities) which do not have a well defined composition;
- special extras provided on the services (meals, vehicle (un)loading);
- special connection specifications.

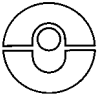
Additional data

- Additional data is linked to timetables, but does not necessarily need to be present in the timetable exchange message. It does not change at the same time as the basic data and may be disregarded, collected locally (which gives each railway the opportunity to adapt the data to its own structure and language requirements), subject to one or two separate messages or included in the timetable exchange message. Additional data includes:
- location of services (e.g. a restaurant in a station);
- local connections for which no timetables are given (e.g. at Paris-Nord, travellers can link up with the metro);
- breakdown of services (and facilities) which have a well-defined composition (Eurostar, coaches);
- spatial details (station name, co-ordinates, platforms and tracks, time zone);

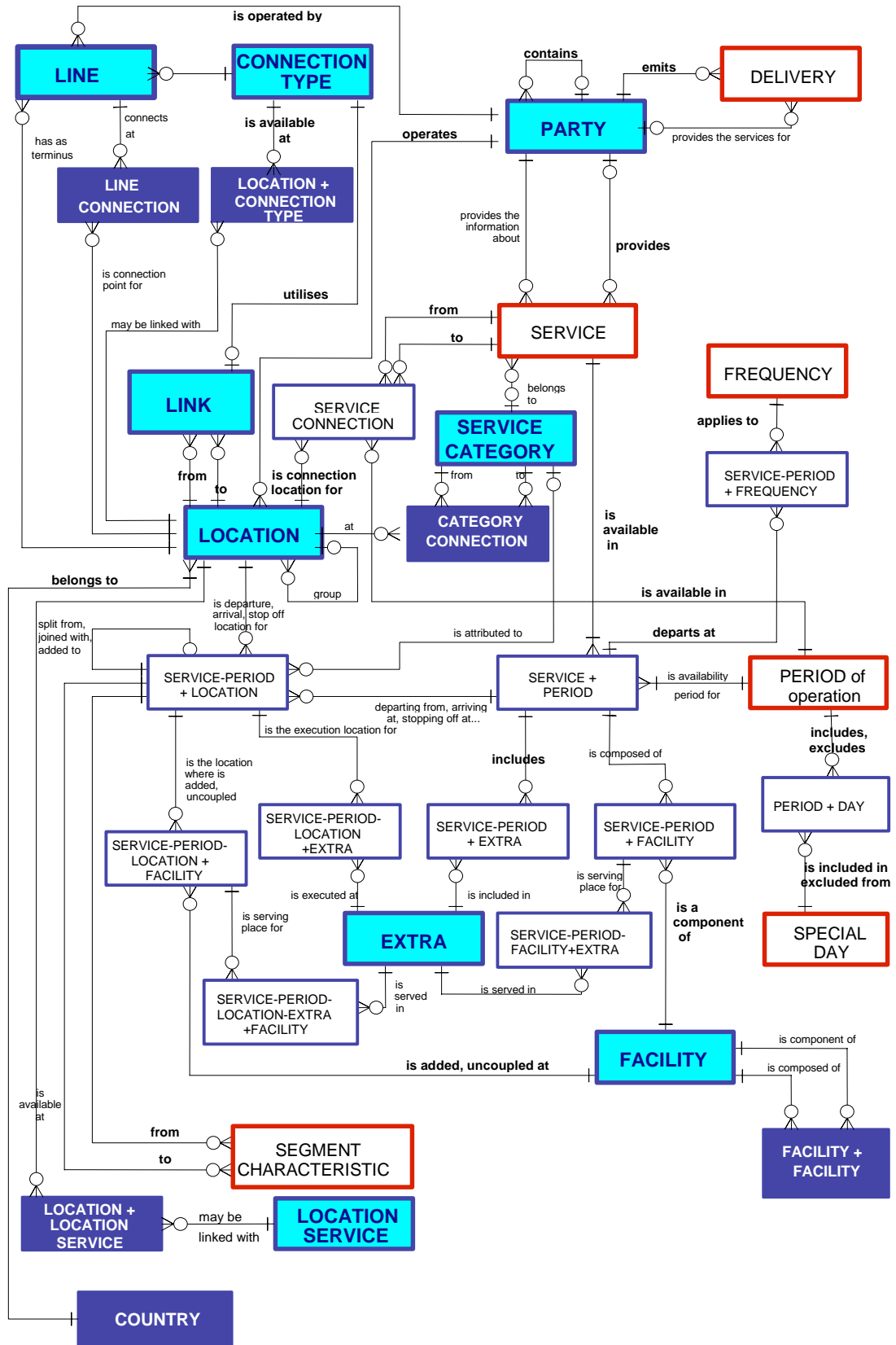


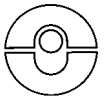
- country specifications (language, transition to winter/summer time)
- etc.

The present data model contains some additional data, which is shown in grey (turquoise in the UIC on-line Internet version) in the Entity Relationship Diagram (see - Point 2.2 - on page 6) and in italics in the Entity Description (see - Point 2.3 - on page 7).



2.2 - Entities relationship diagram.





2.3 - Description of the entities, relations and attributes.

Table 1 : Category Connection

CATEGORY CONNECTION

This entity is a junction between the entities SERVICE CATEGORY (to and from) and LOCATION. It enables the connection time between two given service categories at a given location to be specified.

Attributes

Category Connection ID *ident*

Entity identifier. This attribute is composed of:

1. **Location ID *relat LOCATION*** (see "Location", on page 20)
2. **Service Category ID *relat SERVICE CATEGORY*** (See "Location", on page 20)
Identification of the service category from which the connection starts.
3. **Service Category ID *relat SERVICE CATEGORY*** (See "Service Category", on page 36)
Identification of the service category with which the connection links up.

Category Connection Time

Connection time expressed in minutes.

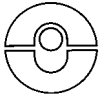


Table 2 : Connection Type

CONNECTION TYPE

The connection type is the means of transport (e.g. metro, bus, taxi, train, etc.) enabling travellers to continue their journey when they arrive at a given location.

Relations

LINE:

A connection type may be attributed to zero, one or several lines.

LINK:

A connection type may be used for zero, one or several links.

LOCATION via junction LOCATION+CONNECTION TYPE:

A connection type may be available at one or several locations.

Attributes

Connection Type ID *ident*

Coded identification of the connection type (e.g. train, metro, bus, taxi, etc.).

Connection Type Description (optional)

A short text describing the connection type. This text can be used for information purposes.

Connection Type Language, coded (optional)

The language in which the description is given (*UN/EDIFACT Data element 3453 and ISO 639-1988*)

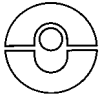


Table 3 : Country

COUNTRY

Self-explanatory.

Relations

LOCATION:

A country boasts one or more locations.

Attributes

Country ID *ident*

Coded identification of the country *ISO 3166*

Country Start of Summer time (optional)

Date and time at which summer time starts.

Country End of Summer time (optional)

Date and time at which summer time ends.

Country Summer time Variation (optional)

Variation, expressed in hours, of summer time in relation to normal time.

Country Winter time Variation (optional)

Variation, expressed in hours, of winter time in relation to normal time.

Country Currency (optional)

A three-position alphabetic code (*UN/EDIFACT Data Element 6345* and *ISO 4217*) three position alphabetic code indicating the currency used in the country.)

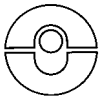


Table 4 : Delivery

DELIVERY

Each party can assign a delivery number to its different data exchanges. This delivery number enables the receiving parties to verify whether they have received each exchange. If some parties only forward the modifications instead of completely resending all timetable data, delivery checks become extremely important as a missing delivery can lead to data corruption.

Relations

PARTY:

1. A delivery is emitted by one party.
2. All the services included in the delivery are provided by no party or one party (this relation may also indicate the "default" service provider, which may be overruled by "specific" providers identified by a relation between SERVICE and PARTY).

Attributes

Delivery ID *ident*

Entity identifier. This attribute is composed of:

1. **Party ID *relat PARTY*** (see "Party", on page 28)
2. **Delivery Reference**
A reference, preferably a serial number, identifying the delivery number for the party.

Delivery Date

The date of delivery.

Delivery Time

The time of delivery.

Delivery Previous Reference (optional)

Identification of the delivery previously sent by the party. If serial numbers are used, this attribute is irrelevant.

Delivery Characteristic (optional)

A code specifying the type of delivery (e.g. complete shipment, modifications only).

Delivery Name (optional)

A name given to the delivery.

Delivery Creation Date (optional)

Date on which the delivery was created.

Delivery Time Mode Indicator (optional)

Specification of the time mode used in the delivery (L = local time).

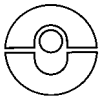


Table 4 : Delivery

Delivery First Date of Validity (optional)

Starting date of the validity period of the timetable data conveyed in the delivery.

Delivery Last Date of Validity (optional)

End date of the validity period of the timetable data conveyed in the delivery.

Delivery Season Indicator (optional)

A code indicating the season (winter, summer) to which the data relates.

Delivery Information Text (optional)

A text covering the delivery.

Delivery Free Format Reference (optional)

A textual description of the delivery.

Delivery Language, coded

The language in which the text is given (*UN/EDIFACT Data Element 3453* and *ISO 639-1988*).

Delivery Service Provider *relat PARTY* (see "Party", on page 28)

Either the provider of all the services included in the delivery or the "default" service provider, which may be overruled by "specific" providers defined by a relation between SERVICE and PARTY.

Delivery Status (optional)

A code specifying the status of the delivery (e.g. stable, temporary, incomplete, etc.).

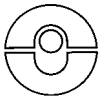


Table 5 : Extra

EXTRA

An "extra" is a time-linked special service or activity occurring during, before or after the execution of a transport service. Examples are: breakfast, lunch, dinner, loading or unloading of vehicles on trains or ships, etc. Certain extras are linked to locations (loading of vehicles), others not (breakfast in a train).

Relations

SERVICE-PERIOD+LOCATION via junction *SERVICE-PERIOD-LOCATION+EXTRA*:

An "extra" may occur on one or more given services/locations.

SERVICE+PERIOD via junction *SERVICE-PERIOD+EXTRA*:

An "extra" may occur on one or more services.

Attributes

Extra ID *ident*

Coded identification of the extra (e.g. breakfast, lunch, dinner, vehicle loading, vehicle unloading, etc.).

Extra Description

A short text describing the facility. This text can be used for information purposes.

Extra Language, coded

The language in which the descriptions are given (*UN/EDIFACT Data Element 3453* and *ISO 639-1988*)

Extra Characteristic ID (optional-repeating attribute)

A code indicating the characteristic of the extra (e.g. reservation possible, reservation compulsory, with supplement, etc.). This attribute can be the object of a separate entity (CHARACTERISTIC).

Extra Characteristic Description (optional-repeating attribute)

A short text describing the characteristic of the extra. This attribute can be the object of a separate entity (CHARACTERISTIC). It can be used for information purposes.



Table 6 : Facility

FACILITY

A facility is a physical component of a service (TGV-train, coach with side corridor, compartment T4, seat, couchette, bed, telephone, etc.).

Relations

FACILITY via junction FACILITY+FACILITY:

1. A facility may contain zero, one or more "sub-facilities" (e.g. a coach contains compartments, a compartment contains seats, etc.).
2. A facility may be a component of zero, one or more "higher-level facilities" (e.g. a seat is a component of a compartment, a compartment belongs to a coach, etc.).

SERVICE-PERIOD+LOCATION via junction SERVICE-PERIOD-LOCATION+FACILITY:

A facility may be added to or uncoupled from one or more services at given locations.

SERVICE+PERIOD via junction SERVICE-PERIOD+FACILITY:

A facility may be present on one or more services.

Attributes

Facility ID *ident*

Coded identification of the facility (e.g. compartment T4, seat, bed, side corridor coach, etc.).

Facility Description

A short text describing the facility. This text can be used for information purposes.

Facility Language, coded

The language in which the description is given (*UN/EDIFACT Data Element 3453 and ISO 639-1988*)

Facility Sale Status (optional-repeating)

A code indicating the sale status of the facility. For instance, as it is impossible to reserve a whole railway coach in a normal reservation transaction, the facilities at coach level should have a code other than RES. This attribute can be used for information purposes.

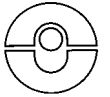


Table 6 : Facility

e.g:

- RES = facility that can be reserved
- WISH = facility that cannot be reserved, but can be the object of a wish expressed by the recipient (e.g. the recipient wishes to have a place in a coach with side corridor)
- NRW = facility that can be neither reserved nor the object of a wish
- SUP = a supplement is to be paid to obtain the facility
- FREE = the facility is gratis

Facility Service Class (optional-repeating)

Service class available in the facility (1st or 2nd class).

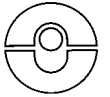


Table 7 : Facility+Facility

FACILITY+FACILITY

This entity is a junction entity between the entities FACILITY and FACILITY. It enables lower-level facilities to be embedded in higher-level facilities.

Attributes

Facility-Facility ID *ident*

Entity identifier. This attribute is composed of:

1. **Higher Level Facility ID *relat FACILITY*** (see "Facility", on page 13)
2. **Lower Level Facility ID *relat FACILITY*** (see "Facility", on page 13)

Facility-Facility Number of Items (optional)

The number of lower-level facility items within the higher-level facility (e.g.: a coach of type xxx has 50 seats).

Population example for this entity

Higher level feature ID	Lower level feature ID	Number	
SC	T4	10	There are 10 T4 compartments in a side corridor coach
T4	BD	4	There are 4 beds in a compartment T4

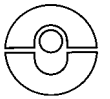


Table 8 : Frequency

FREQUENCY

The frequency describes the frequency interval for services departing at regular time intervals. Services worked at a regular interval should not overlap (i.e. the time of the first service should not overlap with the time of the last one). The day-limit (midnight) should be crossed only once. For regular-interval services, temporal details are given in a relative mode, meaning that the time at the start location is noted as 00:00. The real departure and arrival times are to be derived from the frequency indication, whereby the indicated limits are to be taken in account.

Example: a regular-interval service running from 06:00 to 07:00 at a 20-minute frequency comprises 4 services (trains): 06:00, 06:20, 06:40 and 07:00.

Relations

SERVICE+PERIOD via junction SERVICE-PERIOD+FREQUENCY:

A frequency description may apply to one or more services.

Attributes

Frequency ID *ident*

Coded identification of the frequency.

Frequency Interval

The regular interval between services expressed in minutes.

Frequency First Time

The regular time at which the service departs from its origin location for the first time.

Frequency Last Time

The time at which the service departs from its origin location for the last time.

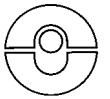


Table 9 : Line

LINE

A line represents a route taken by a means of transport (bus, train, etc.) in a well-specified direction indicated by a destination location. It is a type of transport service for which not all the service details are known.

Relations

CONNECTION TYPE:

A line corresponds to exactly one connection type (bus, train, etc.).

LOCATION:

A line has exactly one terminus location.

LOCATION via junction LINE CONNECTION:

A line may connect one or more locations.

PARTY:

A line is operated by exactly one party.

Attributes

Line ID *ident*

Entity identifier. This attribute is composed of:

1. **Line Number**

Identification of the line.

2. **Location ID *relat LOCATION*** (see "Location", on page 20)

Identification of the line terminus. Since in most cases, the same line number is used for both the outbound and return directions, this identification is needed to specify the direction taken on the line.

Line Connection Type *relat CONNECTION TYPE* (see "Connection Type", on page 8)

Line Frequency (optional)

The regular interval time between services on the line expressed in minutes, e.g. the bus goes every half hour.

Line Description (optional)

A full textual description of the line.

Line Language, coded (optional)

The language in which the description is given (*UN/EDIFACT Data Element 3453 and ISO 639-1988*)

Line Party ID *relat PARTY*

Identification of the party which operates the line.

Line Ticket Validity Duration (optional)

An indication of the duration for which the ticket is valid.

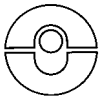


Table 10 : Line connection

LINE CONNECTION

This entity is a junction between the entities LINE and LOCATION. It is used to indicate the locations at which the line connects to normal services.

Attributes

Line Connection ID *ident*

Entity identifier. This attribute is composed of:

1. **Line ID *relat LINE*** (see “Line”, on page 17)
2. **Location ID *relat LOCATION*** (see “Location”, on page 20)

Line Connection First Time (optional)

The first departure time for the line at the given location.

Line Connection Last (optional)

The last departure time for the line at the given location.

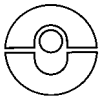


Table 11 : Link

LINK

This entity is used to specify the connection time needed to proceed from one location to another using a given connection type. An example of a link moving between the railway stations Lille Flandres ("from" location) and Lille Europe ("to" location) involves a walk (connection type) of 10 minutes (connection time).

Relations

CONNECTION TYPE:

A link corresponds to exactly one connection type (bus, train, walk etc.).

LOCATION:

1. A link has exactly one "from" location.
2. A link has exactly one "to" location.

Attributes

Link ID *ident*

Entity identifier. This attribute is composed of:

1. **Location ID "From" *relat LOCATION*** (see "Location", on page 20)
Identification of the location at which the link starts.
2. **Location ID "To" *relat LOCATION*** (see "Location", on page 20).
Identification of the location at which the link ends.
3. **Connection Type ID *relat CONNECTION TYPE*** (see "Connection Type", on page 8).
Identification of the connection type used for this link.

Link Connection Time

The time needed to proceed from the "from" location to the "to" location using the given connection type. The time is expressed in minutes.

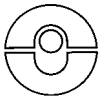


Table 12 : Location

LOCATION

A railway station, bus stop, ferry-port or any other location that is relevant for timetable reasons. Special cases are operational stop-off points and border points, at which passengers may not be allowed to join or to alight.

Some locations (border points between countries, transport companies, etc.) may be included in the itinerary in a virtual way, but not be real stops.

Relations

SERVICE CATEGORY via junction CATEGORY CONNECTION:

At a given location there are zero, one or more service category pairs between which a specific connection time, deviating from the normal connection time at the location, applies.

CONNECTION TYPE via junction LOCATION+CONNECTION TYPE:

At a given location zero, one or more connection types may be available.

COUNTRY:

A location belongs to exactly one country.

LINE:

A location is the terminus of zero, one or more lines.

LINE via junction LINE CONNECTION:

A location is a connection point for zero, one or more lines.

LINK:

1. A location is the "from" location for zero, one or more links.

2. A location is the "to" location for zero, one or more links.

LOCATION:

1. A location belongs to zero or one "higher-level" location.

2. A location hosts zero, one or more "lower-level" locations.

LOCATION SERVICE via junction LOCATION+LOCATION SERVICE:

At a given location zero, one or more location services may be available.

PARTY:

A location is operated by exactly one party.

SERVICE+PERIOD via junction SERVICE-PERIOD+LOCATION:

A location may be a permanent, departure, arrival or stop-off location for one or more services.

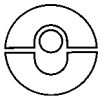


Table 12 : Location

SERVICE CONNECTION:

At a location, the connection time between two services may deviate from the normal connection time linked with that location. For each location, this may happen zero, one or more times.

Attributes

Location ID *ident*

Coded identification of a location. This attribute is composed of the following attributes:

1. **Area ID**

A code indicating the area of the service (e.g. rail, air, ferries, hotel, etc.). As each area may use its own location codes, the Area ID should be a part of the Location ID.

2. **Party ID *relat PARTY*** (see “Party”, on page 28).

Identification of the party operating the location. As each party may use its own location codes, the Party ID should be a part of the Location ID.

3. **Location Code**

Coded identification of location.

Location Code Code List

Indication of the code list used for the Location Code (e.g. *UIC Leaflet 920-2*, *LOCODE*, (see “List of abbreviations”, on page 49) etc.).

Location Name

Self-explanatory

Location Language, coded (optional)

The language in which the names of the location and the country are given (*UN/EDIFACT Data element 3453* and *ISO 639-1988*.)

Location Type

A code indicating the type of location (e.g. railway station, bus station, airport, etc.).

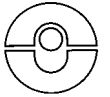


Table 12 : Location

Location Category

A code indicating the location category (e.g. elementary location, group location, zone, etc.).

Location Related Location ID *relat LOCATION* (see - Location ID - page 21).

A code indicating a "higher-level" location to which the location belongs.

Location Address (optional)

The address of the location (street, postal code, city, state, country).

Location Phone Number (optional)

Self-explanatory

Location Fax Number (optional)

Self-explanatory

Location Telex Number (optional)

Self-explanatory

Location E-mail Number (optional)

Self-explanatory

Location Opening Date

Date in the year from which the location is open.

Location Closing Date

Date in the year on which the location closes

Location Opening Time

Time of the day from which the location is open.

Location Closing Time

Time of the day at which the location closes.

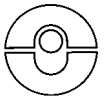


Table 12 : Location

Location Geographic Area (optional)

The general location within a city, country or the world in which a location is situated.

Location Country ID *relat COUNTRY*

(see - Table 3 - on page 9).

Location Average Connection Time (optional)

The time normally needed to connect from any alighting service to any boarding service at the location.

Location Maximum Connection Time (optional)

The maximum time needed to connect from an alighting service to a boarding service at the location.

Location Travel Restriction Code (optional)

A code that indicates whether boarding and/or alighting is or is not allowed at the location. This code has 4 possible values:

- boarding and alighting are allowed (default)
- only boarding is allowed
- only alighting is allowed
- neither boarding nor alighting is allowed

Location Border Point Indicator (optional)

A code which indicates that the location is (or is not) a border point.

Location Longitude (optional)

The longitude of the location expressed as xddmmss.

- x = E for east, W for West
- dd = degrees
- mm = minutes
- ss = seconds

Example: E052110 = 5° 21' 10" East longitude

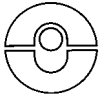


Table 12 : Location

Location Latitude (optional)

The latitude of the location expressed as xddmmss.

- x = N for North, S for South
- dd = degrees
- mm = minutes
- ss = seconds

Example: N052110 = 5° 21' 10" North latitude

Location Time Zone (optional)

The difference in hours against UTC (Greenwich time). Time zones east of Greenwich take the value +1 to +12, west of Greenwich they take the values -1 to -12.

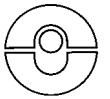


Table 13 : Location Service

LOCATION SERVICE

Location services are types of service which are not the object of a service as defined in the entity SERVICE, but which may be available at certain locations. Examples of location services are a restaurant, buffet or car park, etc.

Relations

LOCATION via junction LOCATION+LOCATION SERVICE
A location service is available at one or more locations.

Attributes

Location Service ID *ident*

Coded identification of the location service (e.g. car park, restaurant, buffet, etc.).

Location Service Description (optional)

A short text describing the location service.

Location Service Language, coded (optional)

The language in which the description is given (*UN/EDIFACT Data element 3453 and ISO 639-1988.*)

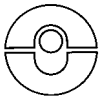


Table 14 : Location+Connection Type

LOCATION+CONNECTION TYPE

This entity is a junction between the entities LOCATION and CONNECTION TYPE. It is used to list the available connection types for each location.

Attributes

The attribute list below merely serves to give an idea of the possibilities; other attributes can be added.

Location-Connection Type ID *ident*

Entity identifier. This attribute is composed of:

1. **Location ID *relat LOCATION*** (see "Location", on page 20).
2. **Connection Type ID *relat CONNECTION TYPE*** (see "Connection Type", on page 8).

Location-Connection Type Ticket Validity Duration (optional)

An indication of the duration of the validity of the ticket.

Location-Local Connection Type Position (optional)

A description of where the connection type (taxi stand, bus terminal, metro station, etc.) is situated within the location.

Other possible attributes related to the connection types are the period(s) and time(s) of operation, the frequency and price, etc. If these attributes are required, they should be included in a junction with the entity PERIOD. In order to avoid encumbrance, this junction entity is not included in the actual data model.



Table 15 : Location+Location Service

LOCATION+LOCATION SERVICE

This entity is a junction between the entities LOCATION and LOCATION SERVICE. It enables the location services available at each location to be given.

Attributes

The attribute list below merely serves to give an idea of the possibilities; other attributes can be added.

Location-Location Service ID *ident*

Entity identifier. This attribute is composed of:

1. **Location ID *relat LOCATION*** (see “Location”, on page 20).
2. **Location Service ID *relat LOCATION SERVICE*** (see “Location Service”, on page 25).

Location-Location Service Name (optional)

Name of the location service (e.g. a restaurant may have a specific name).

Location-Location Service Phone Number (optional)

Self-explanatory

Location-Location Service Fax Number (optional)

Self-explanatory

Location-Location Service Position (optional)

A description of the exact position of the service within the location.

Other possible attributes related to the location services are the period(s) and time(s) of operation, the number of units (e.g. number of bicycles) and price etc. If there no need to add time-related attributes, they may be included in a junction with the entity PERIOD. In order to avoid encumbrance, this junction entity is not included in the actual data model.

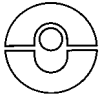


Table 16 : Party

PARTY

A party is a body that provides either the service or the information about the service. It may operate a location, and it also manages its timetable data deliveries. Parties may be organised in hierachically interdependent groups.

RELATIONS

LOCATION:

A party operates zero, one or more locations.

PARTY:

1. A party belongs to or is managed by zero or one "higher-level" party
2. A party manages or represents zero, one or more "lower-level" parties.

SERVICE:

1. A party provides zero, one or more services.
2. A party provides information about zero, one or more services.

DELIVERY

1. A party produces zero, one or more timetable data deliveries.
2. A party is zero or one overall or default provider of the services included in the delivery.

Attributes

Party ID *ident*

Unique identification of the party, composed of:

1. **Area ID**

A code indicating the area (rail, air, ferries, hotel, etc.) of the party. As each area can use its own codes for Identification of its related parties, the Area ID should be a part of the Party ID.

2. **Party ID**

Coded identification of the party within the area.

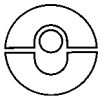


Table 16 : Party

Party Name (optional)

Self-explanatory

Party Type

The type of party (e.g.: railway, tour operator, bus company, etc.).

Party Address (optional)

The address of party (street, building, postal code, city, state, country).

Party Phone Number (optional)

Self-explanatory

Party Fax Number (optional)

Self-explanatory

Party Telex Number (optional)

Self-explanatory

Party E-mail Number (optional)

Self-explanatory

Party Currency, coded (optional)

A three-position alphabetic code (*UN/EDIFACT Data Element 6345* and *ISO 4217*) three-position alphabetic code indicating the currency in which the party wishes to pay or to be paid.

Party Related Party ID (optional) *relat PARTY* (see - Party ID - page 28).

Identification of another party to which the original party is related.

Party Related Party Qualifier (optional)

The type of relationship existing between the original and the related party, seen from the point of view of the original party. Example: the original party is a corporate member of the related party.

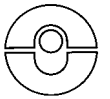


Table 17 : PERIOD of operation

PERIOD of operation

A period of operation is the time (days, hours, season, etc.) during which a service is operated. These periods are most important for reservation and pricing purposes. Moreover, the composition of a service and the locations it serves may be influenced by the period.

Relations

- *SERVICE* via junction *SERVICE+PERIOD*:
At a given period, one or more services are operated.
- *SPECIAL DAY* via junction *PERIOD+DAY*:
A given period may include (or exclude) zero, one or more special days.

Attributes

The attributes listed hereafter reflect the limited scope of possible period definitions. Should more complicated periods be needed, the creation of new entities may be necessary.

Period ID *ident*

Coded identification of the period.

Period Indication

Coded general indication of the period (e.g. winter, summer, permanent, etc.).

Period First Date of Operation

The first date of operation for a given period.

Period Last Date of Operation

The last date of operation for a given period.

Period First Opening Time

The first (e.g. in the morning) or only time at which the service starts.

Period First Closing Time

The first (e.g. in the morning) or only time at which the service finishes.

Period Second Opening Time

The second (e.g. in the afternoon) time at which the service starts.

Period Second Closing Time

The second (e.g. in the afternoon) time at which the service finishes.

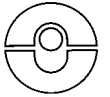


Table 17 : PERIOD of operation

Period Days in the Week

Coded indication of the days in the week on which the service is available. It may contain a maximum of 7 characters, with the following values: 1 for Monday, 2 for Tuesday, etc., 7 for Sunday and 9 for public holidays. If there is a need to indicate that certain days of the week are not included in the period of operation, "not" values can be used, e.g. A for Monday, B for Tuesday, etc. G for Sunday and I for public holidays. It should be noted that each country has its own set of public holidays. The value "9" (and "I") shall be used for universal public holidays only. Other public holidays shall be declared in the entity SPECIAL DAY.

e.g.: 123 = available on Monday, Tuesday and Wednesday

67 = available on Saturday and Sunday

ABI = not on Monday, Tuesday and public holidays

Period Text (optional)

A text related to the period.

Period Language, coded (optional)

The language in which the description is given (*UN/EDIFACT Data element 3453 and ISO 639-1988*).

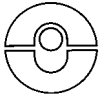


Table 18 : Period+Day

PERIOD+DAY

This entity is a junction between the entities PERIOD and SPECIAL DAY. It is used to specify additional or excluded days within a period of operation.

Attributes

Period-Day ID *ident*

Entity identifier. This attribute is composed of:

1. **Period ID *relat PERIOD*** (see - PERIOD - page 30)
2. **Special Day ID *ident*** (see "Special Day", on page 48).

Period-Day Qualifier

The type of relationship (to add to, to exclude from) existing between the period and the special day, seen from the point of view of the period. Examples: the special day is to be added to the period.

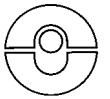


Table 19 : Segment characteristic

SEGMENT CHARACTERISTIC

This entity is a junction entity between the entities SERVICE-PERIOD+LOCATION and SERVICE-PERIOD+LOCATION. It is used to specify exceptional conditions applying to certain service segments. For instance, the London-Ashford segment is not available on the Eurostar No. xxxx, i.e. passengers boarding in London are not allowed to alight in Ashford.

Attributes

Segment ID *ident*

Service segment identifier. This attribute is composed of:

1. **Service-Location ID "From" *relat SERVICE-PERIOD+LOCATION***, (see "Service-Period+Location", on page 43).
Location at which the service segment starts.
2. **Service-Location ID "To" *relat SERVICE-PERIOD+LOCATION***, (see "Service-Period+Location", on page 43).
Location where the service segment ends.
Remark: As the To-Service is the same as the From-Service, only the Location ID has to be specified; the Service-Period ID may be omitted.

Segment Characteristic

Coded characteristic of the segment (e.g. not allowed, etc.).

Segment Supplement Indicator (optional)

Indication that a supplement has to be paid for the segment, also specifying the type of supplement.



Table 20 : Service

SERVICE

A service is the basis for the timetable information. For railways it is a train, for airlines it is a flight, etc. A special type of service is a connection by foot (or by own means of transport). In this case, the service is considered as always being available (entity PERIOD) with a frequency interval of one minute (entity FREQUENCY). Coach groups are considered to be services. A coach group also consists of one or more railway coaches and behaves very much like a train in that it is composed of coaches, has one or more periods of operation and contains facilities, but it is not a train and cannot operate independently as such. Throughout its journey it is coupled to one or more trains. In former versions of this data model, coach groups were the subject of a separate entity. For the sake of simplicity and since the coach group entity has very similar attributes and relations to those of the service entity, coach groups were merged with services.

Relations

SERVICE CATEGORY

A service belongs to zero or one service category.

PARTY

1. A service is provided by zero or one party.
2. The information about a service is provided by exactly one party. This party may be the service provider or another party.

PERIOD of operation via junction SERVICE+PERIOD

A service is operated at one or more periods.

SERVICE CONNECTION

1. A service may occur zero, once or several times as the arrival service for a service connection.
2. A service may occur zero, once or several times as the departure service for a service connection.

Attributes

Service ID *ident*

Unique identification of a service, composed of the following attributes:

1. **Party ID *relat PARTY***
Identification of the service provider.
2. **Service Reference Number**
Unique identification of the service within the provider's service range.

Service Number

The number of the service as noted in the timetables (train number, flight number, etc.).

Service Mode

The mode of transport of the service (train, coach group, plane, boat, bus, etc.).

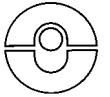


Table 20 : Service

Service Mode Description

A description of the service mode.

Service Information Provider *relat PARTY*

Identification of the provider of the information related to the service.

Service Description (optional)

A short text describing the service.

Service Language, coded (optional)

The language in which the description is given (*UN/EDIFACT Data element 3453 and ISO 639-1988*).

Service Name (optional)

Self-explanatory

Service Category (optional) *relat SERVICE CATEGORY*

Indication of the service category (TGV, EC, IC, ICE, ICN etc.).

Service Characteristic ID (optional - repeating attribute)

Identification of a service characteristic (e.g. reservation possible, reservation compulsory, with supplement, etc.). This attribute can be the subject of a separate entity (CHARACTERISTIC).

Service Characteristic Description (optional - repeating attribute)

A short text describing a characteristic of the service. This attribute could be the subject of a separate entity (CHARACTERISTIC).

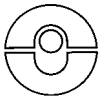


Table 21 : Service Category

SERVICE CATEGORY

The service category indicates one or more of the following characteristics: speed, comfort, on-board service (meals, etc.), etc. Examples for rail are TGV, EC, IC, Eurostar, etc.

Relations

LOCATION via junction CATEGORY CONNECTION:

1. A service category may be the subject of zero, one or more "from" specifications for a service-category-dependent connection at a given location.
2. A service category may be the subject of zero, one or more "to" specifications for a service-category-dependent connection at a given location.

SERVICE:

A service category may be attributed to zero, one or more services.

Attributes

Service Category ID *ident*

Coded identification of a service category. e.g. TGV, EC, IC, etc.

Service Category Name (optional)

Name of the service category. e.g. Très Grande Vitesse, Euro City, Intercity, etc.

Service Category Description (optional)

A short text describing the service category.

Service Category Language, coded (optional)

The language in which the description is given (*UN/EDIFACT Data element 3453 and ISO 639-1988*).

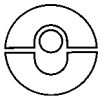


Table 22 : Service Connection

SERVICE CONNECTION

This entity is a junction between the entities LOCATION, SERVICE (to and from) and PERIOD. It indicates the time the traveller needs to connect from an alighting service (= from) to a boarding service (= to) at a given location. The use of this entity is rather exceptional: it is used only when the connection time between two services at a given location deviates from the normal connection time at that location.

Attributes

Service Connection ID *ident*

Entity identifier. This attribute is composed of:

1. **Location ID *relat LOCATION*** (see “Location”, on page 20).
2. **Service ID *relat SERVICE***, (see “Service”, on page 34).
Identification of the service from which the traveller alights.
3. **Service ID *relat SERVICE***, (see “Service”, on page 34).
Identification of the service to which the traveller has to board.
4. **Period ID *relat PERIOD***, see entity PERIOD.
Identification of the period to which the service connection applies.

Service Connection Time (optional)

Connection time expressed in minutes.

Service Connection Characteristic

Coded characteristic of the connection. The following possibilities are to be considered:

- connection ensured under any circumstances;
- connection normally ensured although the connection time is shorter than the Location Connection Time (see “Location”, on page 20);
- connection normally **not** possible although the connection time is longer than the Location Connection Time (see “Location”, on page 20);
- connection **never** possible although the connection time is longer than the Location Connection Time (see “Location”, on page 20).

Service Connection Characteristic Description (optional)

A short text describing the characteristic of the connection. It can be used for information purposes.

Service Connection Language, coded (optional)

The language in which the description is given (UN/EDIFACT Data element 3453 and ISO 639-1988).

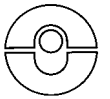


Table 23 : Service+Period

SERVICE+PERIOD

This entity is the junction between the entities SERVICE and PERIOD of operation. It is used to link each service with the related period(s) of operation. As the characteristics (composition, locations, etc.) of the services may change depending on the different periods of operation, this junction entity is very important and is, in fact, the basic entity to which most of the service-dependant entities are related.

Relations

- **EXTRA via junction SERVICE-PERIOD+EXTRA**
Zero, one or more extras may occur on a service.
- **FACILITY via junction SERVICE-PERIOD+FACILITY**
A service is composed of zero, one or more facilities (when the composition of the service is exactly defined by the Service Category attribute (e.g. Eurostar) there is no need to specify the facilities).
- **FREQUENCY via junction SERVICE-PERIOD+FREQUENCY**
A service may be the subject of zero, one or more frequencies.
- **LOCATION via junction SERVICE-PERIOD+LOCATION**
A service departs, arrives, stops off or is permanently present at one or more locations.

Attributes

Service-Period ID *ident*

Entity identifier. This attribute is composed of:

1. **Service ID *relat SERVICE***, (see "Service", on page 34).
2. **Period ID *relat PERIOD***, (see - PERIOD - page 30)

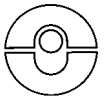


Table 24 : Service-Period + Extra

SERVICE-PERIOD + EXTRA

This entity is a junction entity between the entities SERVICE+PERIOD and EXTRA. It is used to link extras to services.

Attributes

Service-Extra ID *ident*

Entity identifier. This attribute is composed of:

1. **Service-Period ID *relat SERVICE+PERIOD***, (see “Service+Period”, on page 38)
2. **Extra ID *relat EXTRA***, (see “Extra”, on page 12)

Service-Extra First Time (optional)

Start of the period at which the extra for the given service is operational (e.g. beginning of the breakfast period, etc.).

Service-Extra Second Time (optional)

End of the period at which the extra for the given service is operational (e.g. finish of the breakfast period, etc.).

Service-Extra Additional First Time (optional)

Start of an additional period at which the extra for the given service is operational (e.g. beginning of the additional breakfast period, etc.).

Service-Extra Additional Second Time (optional)

End of an additional period at which the extra for the given service is operational (e.g. finish of the additional breakfast period, etc.).

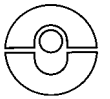


Table 25 : Service-Period + Facility

SERVICE-PERIOD+FACILITY

This entity is a junction entity between the entities SERVICE+PERIOD and FACILITY. It is used to give, for each service, the facilities of which it is composed.

Attributes

Service-Facility ID *ident*

Entity identifier. This attribute is composed of:

1. **Service-Period ID *relat SERVICE+PERIOD***, (see "Service+Period", on page 38)
2. **Facility ID *relat FACILITY***, (see "Facility", on page 13)

Service-Facility Number of Items (optional)

Number of facility items in the service. e.g.: there are 4 coaches of type "xxx" in the service "yyy".

Service-Facility Sale Status (optional-repeating)

A code indicating the sale status of the facility in the given service.

e.g.:

RES = facility that can be reserved

WISH = facility that cannot be reserved, but can be the object of a wish expressed by the recipient (e.g. the recipient wishes to have a place in a coach with side corridor)

NRW = facility that can be neither reserved nor the object of a wish

SUP = a supplement is to be paid to obtain the facility

FREE = the facility is gratis

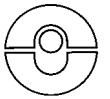


Table 26 : Service-Period-Facility+Extra

SERVICE-PERIOD-FACILITY+EXTRA

This entity is a junction between the entities SERVICE-PERIOD+FACILITY and EXTRA. It is used to specify where in the service the extra is served or available (e.g. the meal is served in the restaurant coach).

Attributes

Service-Facility-Extra ID *ident*

Entity identifier. This attribute is composed of:

1. **Service-Facility ID *relat SERVICE-PERIOD+FACILITY***, (see “Service-Period + Facility”, on page 40)
2. **Extra ID *relat EXTRA***, (see “Extra”, on page 12)

Service-Facility-Extra Action (optional)

Coded indication of the action taken with regard to the facility extra (e.g. opened, closed, etc.).

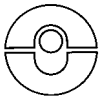


Table 27 : Service-Period+Frequency

SERVICE-PERIOD+FREQUENCY

This entity is a junction between the entities SERVICE+PERIOD and FREQUENCY. It enables the frequencies applying to a service to be given.

Attributes

Service-Frequency ID *ident*

Entity identifier. This attribute is composed of:

1. **Service-Period ID *relat SERVICE+PERIOD***, (see “Service+Period”, on page 38)
2. **Frequency ID *relat FREQUENCY***, (see “Frequency”, on page 16)



Table 28 : Service-Period+Location

SERVICE-PERIOD+LOCATION

This entity is a junction between the entities SERVICE+PERIOD and LOCATION. It is used to indicate the relevant locations for each service. For coach groups, only the locations where they are added to a train are mentioned, and the terminus of the coach group if different from the terminus of the train to which it is added.

Relations

- *EXTRA via junction SERVICE-PERIOD-LOCATION+EXTRA*
At a given location, zero, one or more extras may be provided on a service.
- *FACILITY via junction SERVICE-PERIOD-LOCATION+FACILITY*
At a given location, zero, one or more facilities may be added to or uncoupled from a service.
- *SERVICE CATEGORY*
From a given location onwards, a service belongs to zero or one service category.
- *SERVICE-PERIOD+LOCATION (itself)*
At a given location, a service may join with or split into zero or one other service.

Attributes

Service-Location ID *ident*

Entity identifier. This attribute is composed of:

1. **Service-Period ID *relat SERVICE+PERIOD***, (see “Service+Period”, on page 38)
2. **Location ID *relat LOCATION***, (see “Location”, on page 20).

Service-Location Function

Coded indication of the function of the location in relation to the service (e.g. departure location, destination location, stop-off location, border point etc.).

Service-Location Sequence (optional)

A serial number indicating the order of the locations for the service

Service-Location Arrival time

Arrival time of the service at the location.

Service-Location Departure time

Departure time of a service from the location.

Service-Location Arrival Sub-location

Sub-location (platform) in the location at which the service arrives.

Service-Location Departure Sub-location

Sub-location (platform) in the location from which the service departs.



Table 28 : Service-Period+Location

Service-Location Travel Restriction Code (optional)

A code that indicates whether boarding and/or alighting is or is not allowed at the location. This code has 4 possible values:

- boarding and alighting are allowed (default)
- only boarding is allowed
- only alighting is allowed
- neither boarding nor alighting is allowed

Service-Location Distance (optional)

Distance of the location with regard to the starting point of the service, expressed in measurement units. This attribute enables the systems to calculate the distance between two locations related to a service (e.g. between the departure and the arrival location of a service segment).

Service-Location Distance Measurement Unit Qualifier, coded (optional)

Indication of the unit of measurement (kilometres, miles, etc.) in which the distance is expressed.

Service-Location Category (optional) *relat SERVICE CATEGORY*

Indication of the service category (TGV, EC, IC, ICE, ICN etc.) attributed to the service from the given location onwards. If the service does not change its category during the journey, its overall category is specified in the entity SERVICE.

Service-Location Name (optional)

Name given to the service from a given location onwards. In most cases the service name applies to the whole service itinerary - attribute Service Name, (see "Service", on page 34), in some cases, however, the name may change at a given location.

Service-Location Related Service *relat SERVICE-PERIOD+LOCATION*

Service-Period ID of a service related to the main service at this particular location (e.g. service with which the main service forms a unit, continuation service, split service, service to which the coach group is added, etc.). To make the relation, the Location ID must be added to the Service-Period ID.

Service-Location Related Service Action

Coded indication of the action taken with regard to the related service (e.g. joined with, continues as, split into, added to, etc.).

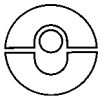


Table 29 : Service-Period-Location + Extra

SERVICE-PERIOD-LOCATION + EXTRA

This entity is a junction between the entities SERVICE-PERIOD+LOCATION and EXTRA. It is used to link extras to locations.

Attributes

Location-Extra ID *ident*

Entity identifier. This attribute is composed of:

1. **Service-Location ID *relat SERVICE-PERIOD+LOCATION***, (see “Service-Period+Location”, on page 43).
2. **Extra ID *relat EXTRA***, (see “Extra”, on page 12).

Location-Extra First Sub-location

First or only sub-location within the location where the extra service is provided (e.g. special loading platform for vehicles).

Location-Extra Second Sub-location (optional)

Second sub-location within the location where the extra service is provided. May be used in from etc. to etc. situations.

Location-Extra First Time (optional)

Start of the period during which the extra for a given service is available (e.g. beginning of the vehicle loading period, etc.).

Location-Extra Second Time (optional)

End of the period during which the extra for a given service is available (e.g. finish of the vehicle loading period, etc.).

Location-Extra Additional First Time (optional)

Start of an additional period during which the extra for a given service is available (e.g. beginning of the additional vehicle loading period, etc.).

Location-Extra Additional Second Time (optional)

End of an additional period during which the extra for a given service is available (e.g. finish of the additional vehicle loading period, etc.).

Location-Extra Action (optional)

Coded indication of the action taken with regard to the extra (e.g. opened, closed, etc.).

Location-Extra Frequency (optional)

Frequency interval at which the extra takes place, expressed in minutes (e.g. meal served every two hours).

Location-Extra Service Direction Indicator (optional)

Coded indication of the direction in which the service is positioned. Used for vehicle (un)loading purposes.

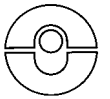


Table 30 : Service-Period-Location+Facility

SERVICE-PERIOD-LOCATION+FACILITY

This entity is a junction between the entities SERVICE-PERIOD+LOCATION and FACILITY. It is used to indicate changes in the service composition at a given location.

Attributes

Location-Facility ID *ident*

Entity identifier. This attribute is composed of:

1. **Location-Period ID *relat SERVICE-PERIOD+LOCATION***, (see "Service-Period+Location", on page 43).
2. **Facility ID *relat FACILITY***, (see "Facility", on page 13).

Location-Facility Action

Coded indication of the action taken with regard to the facilities (added to the service, uncoupled from the service).

Location-Facility Number of Items (optional)

Number of facility items added or uncoupled. e.g.: 4 coaches of type "xxx" added.

Location-Facility Sale Status (optional-repeating)

A code indicating the sale status of the facility in a given service.

e.g.:

RES = facility that can be reserved

WISH = facility that cannot be reserved, but can be the object of a wish expressed by the recipient (e.g. the recipient wishes to have a place in a coach with side corridor)

NRW = facility that can be neither reserved nor the object of a wish

SUP = a supplement is to be paid to obtain the facility

FREE = the facility is gratis

Location-Facility Service Class (optional-repeating)

Service class to which the sale status applies.

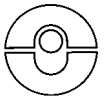


Table 31 : Service-Period-Location-Facility+Extra

SERVICE-PERIOD-LOCATION-FACILITY+EXTRA

This entity is a junction between the entities SERVICE-PERIOD-LOCATION+FACILITY and EXTRA. It is used to specify whereabouts in the service the extra is served or available (e.g. the meal is served in the restaurant coach).

Attributes

Location-Facility-Extra ID *ident*

Entity identifier. This attribute is composed of:

1. **Location-Facility ID *relat SERVICE-PERIOD-LOCATION+FACILITY***, (see “Service-Period-Location+Facility”, on page 46).
2. **Extra ID *relat EXTRA***, (see “Extra”, on page 12).

Location-Facility-Extra Action (optional)

Coded indication of the action taken with regard to the extra at the facility (e.g. opened, closed, etc.).

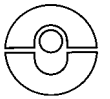


Table 32 : Special Day

SPECIAL DAY

A special day is a day or a period to be added to or excluded from overall period of operation defined in the entity PERIOD. Examples of special days are national or church holidays.

Relations

PERIOD via junction PERIOD+DAY

A special day is added to or excluded from zero, one or more periods of operation.

Attributes

Special Day ID *ident*

Coded identification of the special day.

Special Day Description (optional)

The name of the special day (e.g. Christmas).

Special Day Language, coded (optional)

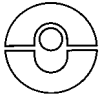
The language in which the description is given (*UN/EDIFACT Data element 3453 and ISO 639-1988*).

Special Day First Date

The date of the special day. If the special day is a period, the first date of the period is given in this attribute.

Special Day Second Date

The last date of the special day period.



List of abbreviations

EDI	Electronic Data Interchange
EDIFACT	EDI for Administration, Commerce and Transport. A syntax for the composition of electronic messages.
ISO	The International Organisation for Standardisation is a worldwide federation of national standards bodies.
LOCODE	An international standard codification for ports and other locations as defined by UN/ECE Recommendation No. 16
TITAN	Timetable Normalisation. A UIC project which aimed to create a set of messages for the exchange of bulk timetable data. The project resulted in the creation of the EDIFACT messages SKDUPD, SKDREQ and TSDUPD (see UIC Leaflet 918-3)
UN/ECE	United Nations Economic Commission for Europe
UN/EDIFACT	United Nations EDIFACT. An international EDI standard, supported by the UN, consisting of a syntax, a set of message design rules and a set of directories for messages and their components.