

Object Identifiers
Framework for Usage of Variant

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History of document versions

Version	Date	Author	Reason for change / comment
0.1	2014-10-06	Helmut Hantak	Creation (1 st draft)
0.2	2015-03-03	Helmut Hantak	Test examples
0.3	2015-06-24	Seid Maglajlic	Review results integrated. Rules 5 and 6 to be the subject of impact analysis
0.4	2015-11-11	Christian Weber	Comments of TrID meeting on 20-10-2015 integrated
0.5	2021-06-16	Christian Weber	Integration of Train Combined Model

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About this document

This document contains the concise description of the framework for usage of the Variant in the TrainIdentifier of an object “Train”. The basic cases that explain the usage of the variant are provided in the form of a table with one column and four rows:

Precondition – the precondition that has to be fulfilled
Trigger – the situation or circumstances which drove the company to the decision to create a Variant (or in general a new object)
Business process – we refer here to the Business Scenarios described in the Telematics Sector Handbook. The readers are required to be familiar with Sector Handbook before examining this document. This document is amended according to the Train Combined Model.
Illustration (in some cases)
Consequences: what happens after the Variant (or in general a new object) has been created – which business processes should be considered?

Introduction

The Framework for Usage of Variant presented here considers situations using the objects identifiers described in WG 10 Handbook. The content is also described in the Sector Handbook, however, here it is described in more detail.

2.1 The variant: What is it all about?

When an object is created such as a train or path in the planning phase it is possible that this object changes over the year (timetable period). E.g. the same train could be retimed at a weekend or in the summer and winter. Without the variant field this would result in there being 2 records of a train with the same core element which would not be unique. One alternative is to use another identifier but then the relationship between them is lost. Another alternative is to include the “Variant” in the identifier. In these cases, for a weekend or in the summer and winter timetable they would be classed as the same core element but a different variant.

The variant applies for the objects Train (inside RU world), Route, Path Request, Path, Case Reference.

Note that the Reference TRID has always the variant 00 (TRIDv00).

As consequence two objects with same type, same owner, same yearly timetable, same core element and different variants have no overlapping Reference Calendar (Planning Calendar taking account of the Offset To Reference).

2.2 The Format of the Identifier

1. Planning: <Object Type>/<Company>/< Core>/<Variant>/< TimetableYear>

2. Operation: <Object Type>/<Company >/<Core>/<Variant>/< TimetableYear>/<Start-Date >

Format:

Elements	Coding	Digits
Object type	AN	2
Company	TAF-TSI/ N (AN allocated from 2026)	4
Core	AN	12
Variant	Internal/AN	2
TimetableYear	YYYY /N	4
(Start-Date)	YYYY-MM-DD/D	10
Sum	Planning	24
Sum	Operation	34

Delimiters are not stored, they are only used if the train ID is presented as a concatenated string!

2.3 Difference between Variant and Version

General meaning of version:

When changes are made to an object (such as a document) which is to be shared between different people it is good practice to put a version number on the object so everyone can check if they have the latest version. A good example is a document (such as these guidelines). The document has a version number. A later version (higher number) always replaces an earlier version (lower number).

Meaning of variant in TrainID:

In the process of timetabling there is another different problem. A train, or an associated object like route or path, is planned for up to 364 or 371 days (52 or 53 weeks) during a yearly timetable. However, it may be necessary to have a slightly different train on some days of the year to others. E.g. there may be extra stops on the train on Sundays to other days of the week. In these cases, there would need to be two “forms” of the same planned train. However, one would not replace the other, they would both exist on different days. In these cases, they would not be a new “Version”, instead they would be a new “Variant” as both old and new variant could exist at the same time. The variant is added to the identifier to make a new unique ID for the Object, like a “suffix” to denote a variation in the original. To all intense and purposes a new variant generates a completely new ID.

However, because it has the same core element all business users can see this in principal as the same train. The variant field is a fixed length of 2 characters. It can use any digit from 0 to 9 and any upper-case character from A to Z. It can not be shortened to 1 character and can not use any punctuation or spaces. Internal rules apply, how to use the variant.

The variant identifies the calendar of the corresponding object. During the planning phase several train (in RU world)/route/path/other objects will be created. They differ slightly in their information (e.g. a train running Monday to Friday has a different timetable than the same train on Saturday). To make the link visible between those similar elements the variant is used. Each object has the

same core (~ family) and the other fields for the identifier but they differ in the variant (~ individual). So it is possible to see the relationship between the objects. During the life span of an object it may happen that the object changes for one (operational) or several start-dates (re-planning). In case that the change is not relevant for all start-dates a new variant is generated. All modified objects during their lifecycle continue to be linked via the Reference TRID (TRIDv00).

2.4 Usage of the Variant in Re-Planning

If these changes affect more than one start-date but not all start-dates of the calendar of the variant there will be two new calendars and variants created. One with the new set of information and the calendar with the affected start-dates and another one with the remaining start-dates and the unchanged information.

2.5 To be decided: To use a “new core element” or a “Variant”

If there is a change to the details of the object on different days of the plan (e.g. weekends vs. weekdays) the owner of the object may either use a new core element or the existing core element with a new variant.

2.6 Rules to be applied for the value 00 of the Variant

2.6.1 – Reference TRID and Object Train

The Reference TRID is always the value 00 of the variant and identifies the ‘family of trains’ with similar but not necessary identical characteristics. The other variants 01 to ZZ of the object Train identify the different Trains inside the RU world. So the Reference TRID (TRIDv00) identify the ‘family of trains’ or an ‘undefined’ train of the family.

2.6.2 – Objects Route, Path Request, Path, Case Reference

For these objects variant 00 shall not be used. The objects are identified by the variant 01 to ZZ.

2.7 Rules to be applied using a “Variant”

Rule 1: Using a VARIANT is always meaning to create a completely NEW Object !!!

Rule 2: Only the owner of the basic object can create a Variant (because of common company code)

Rule 3: The variant can be used only in the standard structure of the code. The rule applies for both planning and operational code type

Rule 4: The variant has 2 digits

Rule 5: The Reference TRID has always the Variant “00”, the other Trains (inside RU world) receive the variant 01 to ZZ.

Rule 6: The objects Route, Path Request, Path, Case Reference are identified by variant 01 to ZZ (v00 shall not be used).

Rule 7: The variant has no meaning of a version.

Use case : variants allocated by Rus and IMs during path allocation process

- 2 RUs, 2 IMs.
- Calendar : January to April.
- Family of trains TRID1 from O to D via H with departure around 10h.
- Two variants of objects Trains requested by the LRU (TRID1v01 and TRID1v02) with slightly different start time in January-February and March-April, same timing in the second network (the objects Trains are used inside RU world).
- One object Route ROID1v01.
- RU1 sends two Path Requests (PRID1v01 for January-February and PRID1v02 for March-April).
- RU2 sends one Path Request PRID2v01.
- IM1 allocates two Paths for the first Path Request (PAID1v01 in January with origin O1 instead O and PAID1v03 in February) and one Path for the second Path Request (PAID1v02 in March-April).
- IM2 allocates one Path for the Path Request (PAID2v01 for the calendar January-April).
- LRU updates the objects Trains according to the Paths details : TRID1v01 in January with updated timings and new origin, TRID1v02 in March-April with updated timings, creation of TRID1v03 in February with the relevant timings (the objects Trains are used inside RU world)
- LRU updates accordingly the object Route: ROID1v01 with reduced calendar (February-April) and creates of the new Route ROID1v02 in January with origin O1.

TRID1v00			
January	February	March	April
TRID1v01 O 10h00 – H 11h00 – D 12h00		TRID1v02 O 09h50 – H 11h00 – D 12h00	
ROID1v01 O – H – D			
PRID1v01 O 10h00 – H 11h00		PRID1v02 O 09h50 – H 11h00	
PRID2v01 H 11h00 – D 12h00			
PAID1v01 O1 10h15 – H 11h05	PAID1v03 O 09h55 – H 11h05	PAID1v02 O 09h50 – H 11h05	
PAID2v01 H 11h05 – D 12h05			
TRID1v01 O1 10h15 – H 11h05 – D 12h05	TRID1v03 O 09h55 – H 11h05 – D 12h05	TRID1v02 O 09h50 – H 11h05 – D 12h05	
ROID1v02 O1 – H – D	ROID1v01 O – H – D		