



Tele Atlas



---

# Tele Atlas MultiNet™ Shapefile 4.3 Format Specifications

document version Final v1.2  
March 2005

© 2003-2004 Tele Atlas NV and Tele Atlas North America, Inc. All rights reserved.

Tele Atlas North America has prepared this document for use by its personnel, licensees, customers, and prospective customers. The information contained herein is strictly confidential, shall remain the property of Tele Atlas North America and may be used only in accordance with the terms of a Tele Atlas North America license agreement. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of Tele Atlas North America.

Tele Atlas North America reserves the right to modify or revise all or parts of this document. The products described in this document are furnished under a license agreement and may be used or copied only in accordance with the terms of that agreement.

Tele Atlas North America holds a non-exclusive license from the United States Postal Service to publish and sell Address Information system and ZIP+4 information. The price of the products of Tele Atlas North America are not established, controlled nor approved by the United States Postal Service.

Tele Atlas North America, Inc. is a wholly-owned subsidiary of Tele Atlas NV. Tele Atlas MultiNet, MultiNet, and the Tele Atlas logo are trademarks of Tele Atlas NV. All other products or company names mentioned are used for identification purposes only, and may be trademarks of their respective owners and are hereby recognized.

#### **U.S. GOVERNMENT RESTRICTED RIGHTS**

Use, duplication, reproduction, release, modification, disclosure, or transfer of this commercial product and accompanying documentation is restricted in accordance with FAR 12.212, DFAR 227.7202, and by a license agreement. For the purpose of any public disclosure provision under any federal, state, or local law, it is agreed that the product is a trade secret and a proprietary commercial product and not subject to disclosure. The contractor/manufacturer is Tele Atlas North America, Inc., 1605 Adams Drive, Menlo Park, CA 94025, 650-328-3825.

# Table of Contents

<b>List of Tables .....</b>	<b>vii</b>
<b>Chapter 1 MultiNet™ Shapefile 4.3 Format Specifications .....</b>	<b>1</b>
Introduction .....	1
MultiNet Shapefile Database Contents and Model .....	2
Introduction .....	2
Layered Data Model.....	3
Related Documents .....	4
Geographic Coordinate System .....	5
Current Geographic Coordinate System .....	5
Used Character Set Codepages .....	6
Default Codepage .....	6
Other Character Set Codepages used.....	6
How to display the characters correctly in ArcGis .....	6
Interpreting the Specifications .....	7
Introduction .....	7
Use of UK and U.S. English.....	7
Table Titles and Headings .....	8
Default Value .....	8
Roads, Ferries, and Address Area Boundary Element .....	9
Basic Route Network Information .....	10
Geocoding Information .....	20
Extended Route Information .....	29
TMC Information .....	38
Level 2 Route Network Information.....	41
Extended Route Restriction Information .....	43

Lane Information .....	48
Streets .....	51
Railways .....	64
Points of Interest .....	65
Center of Settlements.....	74
Water Areas / Lines .....	75
Land Use and Land Cover .....	77
Built-up Areas.....	82
Administrative Areas.....	84
Administrative Places .....	93
Postal Districts .....	96
Other Named Areas .....	97
Structures .....	99
Extra Attribute Tables .....	102
Conversion Records.....	104
<b>Appendix 1 GDF Features, Attributes and Relationships .....</b>	<b>105</b>
<b>Appendix 2 GDF 4.0 Time Domains .....</b>	<b>135</b>
Introduction .....	135
General Description .....	135
starting Date Syntax .....	136
Introduction .....	136
Sharp Time Terms .....	136
Valid Format Combinations and Default Values for Starting Dates	142
General Aspects of the Combination of Starting Date Formats ..	142
General Rule for Default Values.....	142
Detailed Description of Possible Combinations and Default Values..	

Starting Date Examples .....	149
Time Duration Syntax .....	150
Introduction .....	150
Valid Format Combinations and Default Values for Time Durations ..	
152	
Combination of Periods .....	152
Default Values .....	152
Time Domain Combinations .....	154
General Aspects.....	154
Example.....	154
Resolution of a Time Equation .....	156
Introduction .....	156
Boolean Tables.....	156
Example of a Resolution .....	157
Appendix 3 How to Contact Tele Atlas.....	159
Introduction .....	159
Tele Atlas Europe General Information .....	159
Tele Atlas North America General Information .....	159
Sales and Technical Support E-Mail Addresses.....	160



# List of Tables

1. NW Network, Geometry with Basic Attributes .....	10
3. JC Junction, Geometry with Basic Attributes .....	19
4. GC Geocode, Geometry with Geocoding Attributes.....	20
5. PC Postal Code Information on Transportation Element .....	24
6. PCNM Postal Code Name Information.....	25
7. IH Intermediate House Numbers .....	26
8. TA Transportation Element Belonging to Area .....	26
9. AB Address Area Boundary Element Belonging to Address Area .....	27
10. SC Official Street Codes.....	28
11. RN Route Numbers.....	29
12. TO Tourist Roads .....	30
13. MN Maneuvers, Geometry and basic attributes.....	31
14. MP Maneuver Path Index .....	32
15. SG Signpost, Geometry .....	33
16. SP Signpost Path Index .....	33
17. SI Signpost Information.....	33
18. TS Traffic Sign, Geometry with Basic Attributes .....	36
19. TT Traffic Sign Along Road Element.....	36
20. RD TMC information on Road Element .....	38
21. TL TMC Location.....	39
22. TC TMC Location Index.....	39
23. TP TMC Path .....	39
24. TG TMC Path Index .....	40
25. TI TMC PATH Location Index, Geometry.....	40
26. 2R Level 2 Roads.....	41
27. IS Intersections .....	41
28. IG Intersections Index .....	42
29. CF Center Point of Freeway Intersection, Geometry.....	42
30. RS Restrictions .....	43
31. TD Time Domains .....	45
32. SR Speed Restrictions .....	46

33. ST Speed Restriction Time Domains .....	47
34. LL Lane Divider Information .....	48
35. LD Lane Direction Information .....	48
36. LF Direction of Traffic Flow for Lane .....	49
37. LT Time Domains for Direction of Traffic Flow for Lane.....	49
39. LP Lane Connectivity Path. ....	50
38. LN Lane Connectivity Information, Geometry of Lane Connectivity with Basic Attributes .....	50
40. 00 Street 0, Geometry of Motorways with Basic Attributes.....	51
41. 01 Street 1, Geometry of Main Roads with Basic Attributes.....	52
42. 02 Street 2, Geometry of Other Major Roads with Basic Attributes .....	53
43. 03 Street 3, Geometry of Secondary Roads with Basic Attributes .....	54
44. 04 Street 4, Geometry of Local Connecting Roads with Basic Attributes .....	55
45. 05 Street 5, Geometry of Local Roads of High Importance with Basic Attributes.....	56
46. 06 Street 6, Geometry of Local Roads with Basic Attributes.....	57
47. 07 Street 7, Geometry of Local Roads of Minor Importance with Basic Attributes.....	58
48. 08 Street 8, Geometry of Other Roads with Basic Attributes .....	59
49. FE Ferries, Geometry with Basic Attributes.....	61
50. AA Address Areas, Geometry with Basic Attributes .....	63
51. RR Railways, Geometry with Basic Attributes.....	64
52. PI Points of Interest, Geometry with Basic Attributes.....	65
54. PIEA Extended POI Attributes .....	66
53. PINM POI Names. ....	66
55. List of Present Extra Attributes .....	67
56. PR Service Belonging to Service Relation .....	72
57. PE POI at Junction Relation .....	72
58. VR Vicinity Relation.....	72
59. SA Service In Named Area .....	73
60. SM Center of Settlements, Geometry with Basic Attributes .....	74
61. WA Water Areas, Geometry with Basic Attributes .....	75
62. WL Water (Center/Border) Lines, Geometry with Basic Attributes.....	76
63. LU Land Use Areas, Geometry with Basic Attributes.....	77
64. LC Land Cover Areas, Geometry with Basic Attributes .....	79
65. List of Present Display Types.....	80
66. BU Built-up Areas, Geometry with Basic Attributes .....	82
67. BN Built-up Area Names.....	82
68. BE Built-up Area Extended Attributes .....	83
69. BA Built-up Area In Named Area .....	83
70. AO Administrative Area Order 0 Country, Geometry with Basic Attributes.....	85

71. A1 Administrative Area Order 1, Geometry with Basic Attributes .....	85
72. A2 Administrative Area Order 2, Geometry with Basic Attributes .....	85
73. A3 Administrative Area Order 3, Geometry with Basic Attributes .....	86
74. A4 Administrative Area Order 4, Geometry with Basic Attributes .....	87
75. A5 Administrative Area Order 5, Geometry with Basic Attributes .....	87
76. A6 Administrative Area Order 6, Geometry with Basic Attributes .....	88
77. A7 Administrative Area Order 7, Geometry with Basic Attributes .....	88
78. A8 Administrative Area Order 8 Municipality, Geometry with Basic Attributes .....	89
79. A9 Administrative Area Order 9 Sub-Municipality, Geometry with Basic Attributes.....	89
80. AI Area Replaced by Index Area .....	90
81. OL Official Languages .....	91
82. AN Administrative Area Names .....	91
83. AE Administrative Area Extended Attributes.....	91
84. List of Present Extra Attributes .....	92
85. AD Administrative Area Structure Definitions .....	92
86. AP Administrative Places, Geometry with Basic Attributes.....	93
87. PP Place Within Place Relation .....	94
88. NP Administrative Place Names .....	95
89. EP Administrative Place Extended Attributes .....	95
90. PD Postal Districts, Geometry with Basic Attributes .....	96
91. PDNM Postal Drichtict Names .....	96
92. OA Other Named Areas, Geometry with Basic Attributes .....	97
93. AS Area Structures, Geometry with Basic Attributes.....	99
94. PS Point Structures, Geometry with Basic Attributes .....	100
95. LS Line Structures, Geometry with Basic Attributes .....	100
96. SE Structure Transportation Elements Relation .....	101
97. NM Names .....	102
98. EA Extended Attributes .....	103
99. CN Conversion Records .....	104
100. Feature Name and Code, Sorted by Name .....	105
101. Feature Code and Name, Sorted by Code .....	109
102. Attribute Name and Code, Sorted by Name .....	112
103. Attribute Code and Name, Sorted by Code .....	115
104. Attribute Code, Name, Value, and Description .....	118
105. Relationship Code and Name .....	132
106. Relationship Name and Code .....	133
107. Summarizing table of all ‘sharp’ symbols.....	138
108. Summarizing tables of “fuzzy” start symbols.....	138

109. Summarizing table of 'fuzzy' duration symbols .....	140
110. Combination Specific - Specific .....	147
111. Combination Specific - Fuzzy.....	147
112. Combination Fuzzy - Fuzzy .....	148
113. Summarizing table of all symbols.....	151
114. A AND B .....	156
115. A OR B.....	156
116. A AND NOT B.....	156

# Chapter 1: MultiNet™ Shapefile 4.3 Format Specifications

## Introduction

---

Tele Atlas MultiNet shapefile format offers the complete, high-end Tele Atlas database contents structured according to a ready-to-use layered data model and in a standard GIS format. As such, the Tele Atlas flagship product MultiNet is available in a run-time data exchange format that is easy to implement into any GIS-based application.

MultiNet shapefile offers the greatest coverage area, completeness, accuracy, and most recent data, compliant to the highest demands of turn-by-turn navigation applications and offers optimum geocoding match rates. Shapefile is designed for direct use with standard GIS software and tools and is optimized for fast and superior cartographic display, accurate geocoding and rapid optimal route calculation.

MultiNet is available in shapefile format for Western Europe and the United States.

Shapefile format was created at ESRI®, Environmental Systems Research Institute, Inc. (<http://www.esri.com>).

# MultiNet Shapefile Database Contents and Model

## Introduction

---

All of the Features and Attributes contained in a MultiNet Shapefile database are fully defined and described in the [MultiNet Standard Data Specifications](#). A brief explanation and information about using these features and attributes are provided in the [MultiNet User Guide Shapefile Format](#).

The following themes are included in the database:

### 1 Road and Street Network

Detailed road and street network geometry includes these Attributes:

- **Main Attributes:** functional road class, network classification, name, alternate name, side of line, route number, length (meters), and processing status
- **Traffic Attributes:** form of way, road condition, slip road type, freeway, back road, construction status, toll, direction of traffic flow, blocked passage, stubble, special restrictions, Z-level information, vehicle type-specific restrictions, restricted time validity, opening period, plural junction, maneuvers (bifurcations, permitted, priority, prohibited, restricted), signpost information, RDS/TMC (Radio Data System / Traffic Message Channel) locations and path information, intersections, and center point of freeway intersections
- **Geocode Attributes:** official and alternative street names (full and parsing information), side of line, left and right administrative areas (all levels), left and right built-up areas, left and right postal codes (ZIP +4®), left and right address IDs, left and right house number ranges (first, last intermediate, structure, full and base house number information) and official street codes

### 2 Ferry Connections

name and alternate name, direction of traffic flow, type, form of way, functional road class, network classification, opening period, RDS/TMC path information, road display class, route number, and vehicle type

### 3 Address Area Boundaries

### 4 Railways

start-end junction, railway type, official rail name, and Z-Level information

### 5 Points of Interest

entry point, name, brand name, street name, house number, postal code, municipality, telephone and FAX number, email and Internet address, closest road element, service belonging to service, and vicinity relation

### 6 Settlement Centers

name, settlement class, municipality, postal code, built-up area, and closest road element

### 7 Water Areas and Water Lines

water type, name, alternate name, and display class

## 8 Land Use and Land Cover

land use or land cover type, and official and alternate name

## 9 Built-up Areas

official and alternate name

## 10 Administrative Areas and Places

country (down to sub-municipality level), official and alternate names, official languages, and higher level administrative areas

## 11 Postal Districts

postal code

## 12 Other Named Areas

census districts, etc.

## 13 Structures (bridges and tunnels)

**NOTE:** MultiNet does not necessarily contain all Features and Attributes in every region or partition. For region-specific information on coverage and availability, please refer to the appropriate Release Notes of the region or release.

## Layered Data Model

---

MultiNet shapefile is a geographical database designed as a layered data model. The map data are stored, and are grouped conceptually into 13 thematic units. Each unit contains the following:

- One (or more) geometrical layer(s) each one including a geometry table containing the main attributes directly related to the geometrical features. Users can add thematic tables with specific attributes for applications (e.g., netlink table for routing) and can repeat layers to provide easier access to the attribute information (e.g., geocode table).
- Additional (relational) attribute tables:
- Extended attribute tables: contain extra information, or added captured attributes that were not available during the creation of the product format. (After an update of the product format some or all of those attributes can be moved to the main attribute table of the specific feature.) They are distinguished by an “EA” at the beginning of the file name.
- Relational tables: contain other feature IDs within the same layer as an attribute to define a relationship with this feature
- Index tables: provide an index of the elements that form part of a higher-level feature

## Related Documents

---

[MultiNet User Guide Shapefile Format](#) includes a detail description of MultiNet shapefile and a list of related documents.

Please contact Tele Atlas (see Appendix 3: “How to Contact Tele Atlas” on page 159) for more information.

# Geographic Coordinate System

## Current Geographic Coordinate System

---

Projection: Geographic (not projected)

Datum WGS84 (labeled GCS\_WGS\_1984 in ESRI products)

Parameters:

- GEOGCS["GCS\_WGS\_1984",
- DATUM["D\_WGS\_1984",
- SPHEROID["WGS\_1984",6378137,298.257223563]],
- PRIMEM["Greenwich",0],
- UNIT["Degree",0.017453292519943295]]

# Used Character Set Codepages

## Default Codepage

---

By default the MultiNet Shapefile products are delivered in Iso Latin 1 (8859-1) character set code page. For some countries exceptions are made. The used characterset codepage is listed in the Product Release Notes.

## Other Character Set Codepages used

---

Iso Latin 2 (8859-2) is used for Czech and Poland.

Greek (8859-7) is used for Greece.

## How to display the characters correctly in ArcGis

---

ArcGis supports viewing of different character set code pages for Shapefiles.

To enable this it is sufficient to add a “cpg” file for each layer containing the description of the used codepage.

**EXAMPLE:** For the Greece Network Layer, grcgrc\_\_\_\_\_nw.shp, the text file, grcgrc\_\_\_\_\_nw.cpg, must be added with the description “8859-7” inside.

These cpg files are not delivered with the product because they are only supported by ArcGis. Other viewers that support shapefiles do not support these files, for some of these viewers it even causes messages as “corrupted Shape files”.

# Interpreting the Specifications

## Introduction

---

Chapter 1, this chapter, has a detailed table for each shapefile Attribute (.dbf) table.

## Use of UK and U.S. English

---

Generally, U.S. English is used. However, the GDF 3.0 and 4.0 specifications are written in UK English (also see NOTE below), so the following tables use GDF terminology. Differences to keep in mind:

UK English	U.S. English
car park	parking lot
carriage way, carriage-way	carriageway (a lane or set of lanes comprising one side of a highway)
centre	center
co-ordinate	coordinate
manoeuvre	maneuver
metre	meter
petrol	gasoline
postal code	ZIP Code®
roundabout	traffic circle, rotary
slip road	depends on the context; it may be: <ul style="list-style-type: none"><li>• a short road that bypasses an intersection, for example to make a right turn at a stop light</li><li>• a parallel ramp of a highway</li></ul>

**NOTE:** The GDF 3.0 and 4.0 specifications are sometimes inconsistent in their use of terminology. For example, in GDF 4.0 sections 6.2.8.1 and 6.2.8.2, within ten lines are these three different spellings: carriage way, carriage-way, and carriageway. GDF 4.0 also uses both "manoeuvre" and "maneuver". GDF 3.0 uses "co-ordinates" and "coordinates". Etc.

## Table Titles and Headings

---

The title of each Table 1 through Table 99, unless otherwise indicated, is formatted as follows: a two-character shapefile table code (the last two positions of each file name), followed by the shapefile table name, sometimes followed by a further description.

**EXAMPLE:** For the title “NW Network, Geometry with Basic Attributes”, “NW” is the two-character shapefile table code, “Network” is the shapefile table name, and “Geometry with Basic Attributes” is a further description of this shapefile table.

Each table row for Table 1 through Table 99, unless otherwise indicated, specifies an Attribute field. An Attribute field, also known as an “item”, contains the following:

**Abbr.:** the abbreviated name of the data field where this Attribute is stored (Full Upper Case)

**Full Name and Attribute Values:** contains the following...

- the full name of the data field (sometimes followed by a description)
- (sometimes) a list of the possible Attributes
- (sometimes) a list of the possible Attribute Values, with each Value followed by a colon (:) and a description of the Value (sometimes followed by the associated Value for the Attribute Code)

**W:** width, the number of positions in the field

**T:** type, either **N** or **C**...

- **N:** a number with from 1 to 16 digits; a number is more precise than a float if used with decimals for calculation.
- **C:** character; a string of letters, numbers, etc.

**D:** number of decimals, if the field is type N (“-” is “not applicable” for Type C)

## Default Value

---

For all tables, “default” indicates “default Value”. A default Value may be stated explicitly, or not stated at all. The presence of each unique code-combination of Attribute Type Code and Value Code has a particular meaning. The absence of a Type Code is assumed to indicate the Type Code and its default Value. Using FT (“Ferry Type”) as an example:

- If a Ferry Element carries Attribute FT with Value 1, then the assumption is that the ferry is operated by a ship or hovercraft. Or with Value 2, then operated by train.
- If an Element does not carry Attribute FT, then the assumption is that the Element is not a Ferry Element.
- An Element typically does not carry FT with Value 0 (“no ferry”).

For FT, then, its default Value is 0: If an Element does not carry FT, then the assumption is that the Element is not a Ferry Element.

# Roads, Ferries, and Address Area Boundary Element

The Roads, Ferries, and Address Area Boundary Elements unit contains the following Layers and Attribute tables.

Table Name	Table #	Page
NW Network, Geometry with Basic Attributes	1	10
JC Junction, Geometry with Basic Attributes	3	19
GC Geocode, Geometry with Geocoding Attributes	4	20
PC Postal Code Information on Transportation Element	5	24
PCNM Postal Code Name Information	6	25
IH Intermediate House Numbers	7	26
TA Transportation Element Belonging to Area	8	26
AB Address Area Boundary Element Belonging to Address Area	9	27
SC Official Street Codes	10	28
RN Route Numbers	11	29
TO Tourist Roads	12	30
MN Maneuvers, Geometry and basic attributes	13	31
MP Maneuver Path Index	14	32
SG Signpost, Geometry	15	33
SP Signpost Path Index	16	33
SI Signpost Information	17	33
TS Traffic Sign, Geometry with Basic Attributes	18	36
TT Traffic Sign Along Road Element	19	36
RD TMC information on Road Element	20	38
TL TMC Location	21	39
TC TMC Location Index	22	39
TP TMC Path	23	39
TG TMC Path Index	24	40
2R Level 2 Roads	26	41
IS Intersections	27	41
IG Intersections Index	28	42
CF Center Point of Freeway Intersection, Geometry	29	42

Table Name	Table #	Page
RS Restrictions	30	43
TD Time Domains	31	45
SR Speed Restrictions	32	46
ST Speed Restriction Time Domains	33	47
ST Speed Restriction Time Domains	33	47
LL Lane Divider Information	34	48
LD Lane Direction Information	35	48
LF Direction of Traffic Flow for Lane	36	49
LT Time Domains for Direction of Traffic Flow for Lane	37	49
LN Lane Connectivity Information, Geometry of Lane Connectivity with Basic Attributes	38	50
LP Lane Connectivity Path	39	50

## Basic Route Network Information

---

The Network (\_NW) theme contains all of the topological Transportation Elements (Roads, Ferries, Address Area Boundaries Elements) within the MultiNet Shapefile product set. The Network theme is useful for many GIS applications, for example:

- Displaying all Transportation Elements in one theme
- Making queries on all Transportation Elements
- Supporting vehicle routing applications

**NOTE:** As requested by a lot of customers, the former NetLink (\_NL) table is permanently joined with the Network (\_NW) table.

**Table 1: NW Network, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0

**Table 1: NW Network, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
FT	Ferry Type <ul style="list-style-type: none"> <li>• 0: No Ferry (default)</li> <li>• 1: Ferry Operated by Ship or Hovercraft</li> <li>• 2: Ferry Operated by Train</li> </ul>	1	N	0
F_JNCTID	From (Start) Junction Identification	15	N	0
F_JNCTTYP	From (Start) Junction Type <ul style="list-style-type: none"> <li>• 0: Junction (default)</li> <li>• 2: Bifurcation</li> <li>• 3: Railway Crossing</li> <li>• 4: Country Border Crossing</li> <li>• 5: Ferry Operated by Train Crossing</li> </ul>	1	N	0
T_JNCTID	To (End) Junction Identification	15	N	0
T_JNCTTYP	To (End) Junction Type <ul style="list-style-type: none"> <li>• 0: Junction (default)</li> <li>• 2: Bifurcation</li> <li>• 3: Railway Crossing</li> <li>• 4: Country Border Crossing</li> <li>• 5: Ferry Operated by Train Crossing</li> </ul>	1	N	0
PJ	Plural Junction <ul style="list-style-type: none"> <li>• 0: Not Part of Plural Junction (default)</li> <li>• 1: Part of Plural Junction</li> </ul>	1	N	0
METERS	Feature Length (meters)	15	N	1

**Table 1: NW Network, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• -1: Not Applicable (for FeatTyp 4165)</li> <li>• 0: Motorway, Freeway, or Other Major Road</li> <li>• 1: a Major Road Less Important than a Motorway</li> <li>• 2: Other Major Road</li> <li>• 3: Secondary Road</li> <li>• 4: Local Connecting Road</li> <li>• 5: Local Road of High Importance</li> <li>• 6: Local Road</li> <li>• 7: Local Road of Minor Importance</li> <li>• 8: Other Road</li> </ul>	2	N	0
NETCLASS	Calculated NetClass In Europe this field contains the former Net1Class <ul style="list-style-type: none"> <li>• 0: Not Applicable (default)</li> <li>• 1..4: Class 1..4 (For North-American countries 1..7)</li> </ul>	1	N	0
NETBCLASS	Net B Class <ul style="list-style-type: none"> <li>• 0: Not Applicable (default)</li> <li>• 1..6: Class 1(Highest)..6 (Lowest) (For North-American countries 1..7)</li> </ul>	2	N	0
NET2CLASS	Net 2 Class <ul style="list-style-type: none"> <li>• -1: Not Applicable (default)</li> <li>• 0..6: Class 0 (Highest)..6 (Lowest)</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-
SOL	Side of Line <ul style="list-style-type: none"> <li>• 0: Both Sides (default)</li> <li>• 1: Left</li> <li>• 2: Right</li> </ul>	1	N	0

**Table 1: NW Network, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
CHARGE	Road Charge <ul style="list-style-type: none"> <li>• Blank: none (default)</li> <li>• B: Charge in Both Directions</li> <li>• FT: Charge in Positive Direction</li> <li>• TF: Charge in Negative Direction</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-
PROCSTAT	Processing Status <ul style="list-style-type: none"> <li>• 1: Fully Attributed (default)</li> <li>• 2: Basic Attributed</li> <li>• 9: Incompletely Attributed</li> </ul>	1	N	0

**Table 1: NW Network, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
FOW	<p>Form of Way</p> <ul style="list-style-type: none"> <li>• -1: Not Applicable</li> <li>• 1: Part of Motorway</li> <li>• 2: Part of Multi Carriageway which is Not a Motorway</li> <li>• 3: Part of a Single Carriageway (default)</li> <li>• 4: Part of a Roundabout</li> <li>• 6: Part of an ETA: Parking Place</li> <li>• 7: Part of an ETA: Parking Garage (Building)</li> <li>• 8: Part of an ETA: Unstructured Traffic Square</li> <li>• 10: Part of a Slip Road</li> <li>• 11: Part of a Service Road</li> <li>• 12: Entrance / Exit to / from a Car Park</li> <li>• 14: Part of a Pedestrian Zone</li> <li>• 15: Part of a Walkway</li> <li>• 17: Special Traffic Figures</li> <li>• 20: Road for Authorities</li> </ul>	2	N	0
SLIPRD	<p>Slip Road</p> <ul style="list-style-type: none"> <li>• 0: No Slip Road (default)</li> <li>• 1: Parallel Road</li> <li>• 2: Slip Road of a Grade Separated Crossing</li> <li>• 3: Slip Road of a Crossing at Grade</li> <li>• 18: Major / Minor Slip Road</li> </ul>	2	N	0
FREEWAY	<p>Freeway</p> <ul style="list-style-type: none"> <li>• 0: No Part of Freeway (default)</li> <li>• 1: Part of Freeway</li> </ul>	1	N	0

**Table 1: NW Network, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
BACKRD	Back Road <ul style="list-style-type: none"> <li>• 0: No Back Road (default)</li> <li>• 1: Back Road</li> <li>• 2: Unaddressable Path</li> <li>• 3: Unclassified Back Road</li> <li>• 4: Primary Sector Service Road</li> <li>• 5: Destination Road</li> </ul>	1	N	0
TOLLRD	Toll Road <ul style="list-style-type: none"> <li>• Blank: No Toll Road (default)</li> <li>• B: Toll Road in Both Directions</li> <li>• FT: Toll Road in Positive Direction</li> <li>• TF: Toll Road in Negative Direction</li> </ul>	2	C	-
RDCOND	Road Condition <ul style="list-style-type: none"> <li>• 0: Not Applicable</li> <li>• 1: Paved Road</li> <li>• 2: Unpaved Road</li> <li>• 3: Road in Poor Condition</li> </ul>	1	N	0
STUBBLE	Stubble <ul style="list-style-type: none"> <li>• 0: No Stubble (default)</li> <li>• 1: Stubble</li> </ul>	1	N	0
PRIVATERD	Private Road <ul style="list-style-type: none"> <li>• 0: No Special Restriction (default)</li> <li>• 2: Not Publicly Accessible</li> </ul>	1	N	0
CONSTATUS	Construction Status <ul style="list-style-type: none"> <li>• Blank: Not Under Construction (default)</li> <li>• FT: Under Construction in Positive Direction</li> <li>• N: Under Construction in Both Directions</li> <li>• TF: Under Construction in Negative Direction</li> </ul>	2	C	-

**Table 1: NW Network, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
ONEWAY	Direction of Traffic Flow <ul style="list-style-type: none"> <li>• Blank: Open in Both Directions (default)</li> <li>• FT: Open in Positive Direction</li> <li>• N: Closed in Both Directions</li> <li>• TF: Open in Negative Direction</li> </ul>	2	C	-
F_BP	From (Start) Blocked Passage <ul style="list-style-type: none"> <li>• 0: No Blocked Passage at Start Junction (default)</li> <li>• 1: Blocked Passage at Start Junction</li> </ul>	1	N	0
T_BP	To (End) Blocked Passage <ul style="list-style-type: none"> <li>• 0: No Blocked Passage at End Junction (default)</li> <li>• 2: Blocked Passage at End Junction</li> </ul>	1	N	0
F_ELEV	Begin Level <ul style="list-style-type: none"> <li>• 0: Ground Z Level (default)</li> <li>• -9..9: Level -9 to Level 9, resp. from Lowest to Highest Z Level</li> </ul>	2	N	0
T_ELEV	End Level <ul style="list-style-type: none"> <li>• 0: Ground Z Level (default)</li> <li>• -9..9: Level -9 to Level 9, resp. from Lowest to Highest Z Level</li> </ul>	2	N	0
KPH	Calculated Average Speed (kilometers per hour)	3	N	0
MINUTES	Travel Time (minutes)	7	N	3
POSACCUR	Positional Accuracy <ul style="list-style-type: none"> <li>• 0: Normal Accuracy Level (default)</li> <li>• 1: High Inaccuracy Level</li> <li>• 2: Low Inaccuracy Level</li> </ul>	1	N	0
CARRIAGE	Carriageway Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 1: Car Pool</li> <li>• 2: Express</li> <li>• 3: Local</li> </ul>	1	C	-
LANES	Number of Lanes	2	N	0

**NOTE:** Oneway, F\_BP and T\_BP (Blocked Passage) reflect the restrictions for Passenger Cars (VT11 & VTO) as they are also available in the Restrictions (RS) table. The Time Domain Information

is not taken into account to populate these fields.

Wheter Blocked Passage is removable is also to be found in the RS table

**NOTE:** Route Number Types for USA:

**Table 2: RTETYP Value Domain**

Value	Description	Value	Description	Value	Description
1	Interstate	11	U.S. Highway	21	State Highway
2	Interstate Business Loop or Interstate Business Route	12	U.S. Highway Business Loop or USA Highway Business Route	22	State Highway Business Loop or State Highway Business Route
3	Interstate Truck or Interstate Truck Route	13	U.S. Highway Truck or U.S. Highway Truck Route	23	State Highway Truck or Truck Route
4	Interstate Connector	14	U.S. Highway Connector	24	State Highway Connector
5	Interstate Loop	15	U.S. Highway Loop	25	State Highway Loop
6	Interstate Spur	16	U.S. Highway Spur	26	State Highway Spur
		17	U.S. Highway Bypass	27	State Highway Bypass
		18	U.S. Highway Alternate	28	State Highway Alternate
		19	U.S. Highway Scenic	29	State Highway Scenic
		20	U.S. Highway Link	30	State Highway Link
				31	State Highway Access Road
				32	State Highway Extended
				33	State Highway Service Road
				41	County Highway
				42	County Highway Business
				43	County Highway Truck
				44	County Highway Connection
				46	County Highway Spur
				48	County Highway Alternate
				51	Farm-to-Market
				61	Turnpike
				62	Expressway
				63	Parkway
				71	Township Road
				72	Logging Road
				73	Forest Service Road
				98	Unknown
				99	Unknown

**Table 3: JC Junction, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4120: Junction</li> <li>• 4220: Railway Element Junction</li> </ul>	4	N	0
JNCTTYP	Junction Type <ul style="list-style-type: none"> <li>• 0: Junction (default)</li> <li>• 2: Bifurcation</li> <li>• 3: Railway Crossing</li> <li>• 4: Country Border Crossing</li> <li>• 5: Ferry Operated by Train Crossing</li> </ul>	1	N	0
ELEV	Z Level <ul style="list-style-type: none"> <li>• 0: Ground Z Level (default)</li> <li>• -9..9: Level -9 to Level 9, resp. from Lowest to Highest Z Level</li> </ul>	2	N	0

## Geocoding Information

---

The geocode (\_GC) theme is a reference theme designed exclusively for geocoding. This theme contains all of the edges/lines/arcs and Attributes required for address geocode operations. The parsed addresses conform to normal postal standards for the spelling of street abbreviations and road names. The [MultiNet User Guide Shapefile Format](#) has information about the enhancements that Tele Atlas adds to the geocoding theme to increase geocoding match rates.

**Table 4: GC Geocode, Geometry with Geocoding Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0
FULLNAME	Street Name or Route Name	70	C	-
NAMELC	Street Name Language Code	3	C	-
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• AN: Alternate Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
SOL	Side of Line <ul style="list-style-type: none"> <li>• 0: Both Sides (default)</li> <li>• 1: Left</li> <li>• 2: Right</li> </ul>	1	N	0
NAMEFORM	Street Name Rule	8	C	-
NAME	Street Name Body or Route Number	70	C	-
NAMEPREFIX	Street Name Prefix	30	C	-
NAMESUFFIX	Street Name Suffix	20	C	-
NAMEKEY	Street Name Key	50	C	-
SUFDIR	Street Name Suffix Directions	10	C	-
PREDIR	Street Name Prefix Directions	10	C	-
NAMERANK	Display priority for Names/Route Numbers. 0=Undefined (Default) ( <b>US Only contains values &lt;&gt; 0</b> )	2	N	0
PRETYPE	Street Name Prefix Type	10	C	-
SUFTYPE	Street Name Suffix Type	10	C	-

**Table 4: GC Geocode, Geometry with Geocoding Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
L_LAXORD	Left Lowest Admin Area Order	1	N	0
R_LAXORD	Right Lowest Admin Area Order	1	N	0
L_LAXONLC	Left Lowest Admin Area Official Name Language Code	3	C	-
R_LAXONLC	Right Lowest Admin Area Official Name Language Code	3	C	-
L_LAXON	Left Lowest Admin Area Official Name	70	C	-
R_LAXON	Right Lowest Admin Area Official Name	70	C	-
L_AXON	Left Lowest -1 Admin Area Official Name	70	C	-
R_AXON	Right Lowest -1 Admin Area Official Name	70	C	-
L_ORDER00	Left Order 0 Administrative Area Code	3	C	-
R_ORDER00	Right Order 0 Administrative Area Code	3	C	-
L_ORDER01	Left Order 1 Administrative Area code	11	C	-
R_ORDER01	Right Order 1 Administrative Area code	11	C	-
L_ORDER08	Left Order 8 Administrative Area Code	11	C	-
R_ORDER08	Right Order 8 Administrative Area Code	11	C	-
L_PC	Left Postal Code	6	C	-
R_PC	Right Postal Code	6	C	-
L_PCEXT	Left Postal Code (ZIP+4®)	10	C	-
R_PCEXT	Right Postal Code (ZIP+4®)	10	C	-
L_APNAME	Left Administrative Place C Name	70	C	-
R_APNAME	Right Administrative Place C Name	70	C	-
L_ADDRID	Left Address Identification • -1: Not Applicable	25	C	-
R_ADDRID	Right Address Identification • -1: Not Applicable	25	C	-
L_STRUCT	Left House Number Structure • 0: Not Applicable (default) • 1: No House Numbers at All • 2: Even • 3: Odd • 4: Mixed • 5: Irregular House Number Structure	1	N	0
L_F_ADD	Left First Base House Number • -1: Not Applicable	10	N	0

**Table 4: GC Geocode, Geometry with Geocoding Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
L_F_F_ADD	Left First Full House Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
L_F_I	Interpolated Left First House Number <ul style="list-style-type: none"> <li>• 0: Not Interpolated (default)</li> <li>• 1: Interpolated</li> </ul>	1	N	0
L_T_ADD	Left Last Base House Number <ul style="list-style-type: none"> <li>• -1: Not Applicable</li> </ul>	10	N	0
L_T_F_ADD	Left Last Full House Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
L_T_I	Interpolated Left Last House Number <ul style="list-style-type: none"> <li>• 0: Not Interpolated (default)</li> <li>• 1: Interpolated</li> </ul>	1	N	0
L_INTM	Left Intermediate House Numbers Flag <ul style="list-style-type: none"> <li>• 0: No Intermediate House Numbers</li> <li>• 1: Intermediate House Numbers Present</li> </ul> <p><b>NOTE:</b> The Intermediate House Numbers are stored in the _IH Table.</p>	1	N	0
R_STRUCT	Right House Number Structure <ul style="list-style-type: none"> <li>• 0: Not Applicable (default)</li> <li>• 1: No House Numbers at All</li> <li>• 2: Even</li> <li>• 3: Odd</li> <li>• 4: Mixed</li> <li>• 5: Irregular House Number Structure</li> </ul>	1	N	0
R_F_ADD	Right First Base House Number <ul style="list-style-type: none"> <li>• -1: Not Applicable</li> </ul>	10	N	0
R_F_F_ADD	Right First Full House Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
R_F_I	Interpolated Right First House Number <ul style="list-style-type: none"> <li>• 0: Not Interpolated (default)</li> <li>• 1: Interpolated</li> </ul>	1	N	0

**Table 4: GC Geocode, Geometry with Geocoding Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
R_T_ADD	Right Last Base House Number <ul style="list-style-type: none"> <li>• -1: Not Applicable</li> </ul>	10	N	0
R_T_F_ADD	Right Last Full House Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
R_T_I	Interpolated Right Last House Number <ul style="list-style-type: none"> <li>• 0: Not Interpolated (default)</li> <li>• 1: Interpolated</li> </ul>	1	N	0
R_INTM	Right Intermediate House Numbers Flag <ul style="list-style-type: none"> <li>• 0: No Intermediate House Numbers</li> <li>• 1: Intermediate House Numbers Present</li> </ul>	1	N	0
<b>NOTE:</b> The Intermediate House Numbers are stored in the _IH Table.				
RECTYP	Record Type <ul style="list-style-type: none"> <li>• A: ZIP+4</li> <li>• B: ZIP+2</li> <li>• C: Zip Code®</li> <li>• D: SCF (3 Digit Zip Code Prefix)</li> <li>• P: MultiNet (default)</li> <li>• G: DynaMap</li> </ul>	1	C	-

The Postal Code Information on Transportation Element describes the Main Postal Codes per side and per transportation element. Also the sub-postal code information is described, ordered from start to end junction per side of the transportation element.

**Table 5: PC Postal Code Information on Transportation Element**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification - Road Element - Ferry Connection Element - Address Area Boundary Element	15	N	0
POSTALTYP	Postal Code Information Type <ul style="list-style-type: none"><li>• 1: Main</li><li>• 2: Sub</li></ul>	1	N	0
SOL	Side Of Line <ul style="list-style-type: none"><li>• 0: Both sides (default)</li><li>• 1: Left</li><li>• 2: Right</li></ul>	1	N	0
SEQNR	Sequential Number indicating the sequence of the postal code from start to end junction of the Transportation Element. Only of importance in case of Sub-Postal Codes.	5	N	0
POSTCODE	Postal Code	10	C	-
NAME	Primary Postal Name	70	C	-
NAMELC	Postal Name Language Code	3	C	-

The Postal Code Name Table contains all captured names, in different languages. The table can be linked to the PC table via the POSTCODE attribute.

**Table 6: PCNM Postal Code Name Information**

Abbr.	Full Name and Attribute Values	W	T	D
POSTCODE	Postal Code (Zip Code® in the U.S.)	10	C	-
NAMETYP	<p>Name Type</p> <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• AN: Alternate Name</li> </ul> <p>Postal Name Type (Only for USA)</p> <ul style="list-style-type: none"> <li>• PY: Postal Place Name that is Acceptable as a Last Line Name of an Address</li> <li>• PN: Postal Place Name that is Not Acceptable as a Last Line Name of an Address</li> <li>• LL: Last Line Name or Preferred Postal Place Name</li> </ul>	2	C	-
NAME	Postal District Name	70	C	-
NAMELC	Name Language Code	3	C	-
CNTCD	ISO Country Code	3	C	-
CNTNUM	ISO Country Number	3	N	0

The Intermediate House Numbers describe the order of House Numbers on a street, side dependant. This table only contains the individual house numbers for captured intermediate house numbers, mostly present in case of irregular house number structures.

**Table 7: IH Intermediate House Numbers**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
ADD	Base House Number	6	N	0
F_ADD	Full House Number	10	C	-
STRUCT	House Number Structure <ul style="list-style-type: none"> <li>• 0: Not Applicable (default)</li> <li>• 1: No House Numbers at All</li> <li>• 2: Even</li> <li>• 3: Odd</li> <li>• 4: Mixed</li> <li>• 5: Irregular House Number Structure</li> </ul>	1	N	0
SOL	Side Of Line <ul style="list-style-type: none"> <li>• 0: Both Sides (default)</li> <li>• 1: Left</li> <li>• 2: Right</li> </ul>	1	N	0

The Transportation Element belonging to Area describes the relation between the Transportation Elements and the areas they belong to. The area types are limited to Administrative Areas and Places and Built-up Areas

**Table 8: TA Transportation Element Belonging to Area**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
TRPELTYP	Feature Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0
AREID	Area Identification	15	N	0

**Table 8: TA Transportation Element Belonging to Area (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
ARETYP	<p>Feature Type</p> <ul style="list-style-type: none"> <li>• 1111..1120: Administrative Area Order 0..9</li> <li>• 1165 ..1199: Administrative Place A..Z</li> <li>• 3110: Built-Up Area</li> <li>• 3134: Census District</li> <li>• 9200: Index Area</li> <li>• 9341: Census Block</li> <li>• 9342: Urbanized Area</li> <li>• 9344: Census Block Group</li> <li>• 9343: Census Tract</li> </ul>	4	N	0
SOL	<p>Side Of Line</p> <ul style="list-style-type: none"> <li>• 0: Both Sides (default)</li> <li>• 1: Left</li> <li>• 2: Right</li> </ul>	1	N	0

Address Area Boundary Element belonging to Address Area (\_AB) contains the relation of Address Area Boundary Element versus the Address Area it bounds.

**Table 9: AB Address Area Boundary Element Belonging to Address Area**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
TRPELTYP	<p>Feature Type</p> <ul style="list-style-type: none"> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0
AREID	Area Identification	15	N	0
ARETYP	<p>Feature Type</p> <ul style="list-style-type: none"> <li>• 4160: Address Area</li> </ul>	4	N	0
SOL	<p>Side Of Line</p> <ul style="list-style-type: none"> <li>• 0: Both Sides (default)</li> <li>• 1: Left</li> <li>• 2: Right</li> </ul>	1	N	0

The Official Street Codes (see Table 10) are currently used only in Europe. Generally an Official Street Code represents an unique reference of streets within a country. A street in this sense is a logical unit having the same official street name. The code is provided by the official authorities so as to conveniently link official statistics and other official data referring to the particular streets.

**Table 10: SC Official Street Codes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SOL	Side of Line <ul style="list-style-type: none"> <li>• 0: Both Sides (default)</li> <li>• 1: Left</li> <li>• 2: Right</li> </ul>	1	N	0
OSC	Official Street Code	20	C	-

## Extended Route Information

---

### Route Numbers

The “Route Numbers” table contains all Route Numbers for Road Elements separately with their own type and direction.

**Table 11: RN Route Numbers**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0
ROUTENUM	Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• 1 to 99: Type 1 to 99</li> <li>• 0 : Unknown</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-
RTEPRIOR	Route Number Priority	1	N	0

The “Tourist Roads” table contains the name and type of Tourist Roads. One Transportation Element can belong to different Tourist Routes. For each Tourist Route Name a reference to the Transportation Element is present.

**Table 12: TO Tourist Roads**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0
NAMTYP	Tourist Road Name Type <ul style="list-style-type: none"> <li>• 7M: Standard Name for Tourist Road</li> <li>• 7N: Alternate Name for Tourist Road</li> </ul>	2	C	-
NAME	Tourist Route Name	70	C	-
NAMELC	Tourist Route Name Language Code	3	C	-
ROADTYP	Tourist Road Type <ul style="list-style-type: none"> <li>• 1: Scenic Route</li> <li>• 2: National Route</li> <li>• 3: Regional Route</li> <li>• 4: Nature Route</li> <li>• 5: Cultural Historic Route</li> </ul>	1	N	0

## Maneuvers

The “Maneuvers” table (see Table 13) is a table of Attributes relating to the type and structure of a Maneuver Relationship. The Relationship relates access to one Transportation Element from another Transportation Element.

**NOTE:** This table now contains the Junction geometry as well. The Junction has been removed from the Maneuver Path Index.

**Table 13: MN Maneuvers, Geometry and basic attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 9401: Bifurcation</li> <li>• 9855: Permitted Maneuver</li> <li>• 2104: Priority Maneuver</li> <li>• 2103: Prohibited Maneuver</li> <li>• 2102: Restricted Maneuver</li> <li>• 2101: Calculated/Derived Prohibited Maneuver</li> </ul>	4	N	0
BIFTYP	Bifurcation Type <ul style="list-style-type: none"> <li>• 0: Undefined</li> <li>• 1: Multi Lane Fork</li> <li>• 2: Simple Fork</li> <li>• 9: Exit Bifurcation</li> </ul>	1	N	0
PROMANTYP	Prohibited Maneuver Type <ul style="list-style-type: none"> <li>• 0: Prohibited Maneuver</li> <li>• 1: Implicit Turn</li> </ul>	1	N	0
JNCTID	Junction Identification of the Location of the Maneuver Sign	15	N	0

The “Maneuver Path Index” table (see Table 14) describes the path of a Maneuver Relationship: Start TRPELIDUp to end TRPELID. The Sequential Number (SEQNR) Attribute contains the exact position that an Element occupies in a Maneuver Relationship chain.

**NOTE:** The junction, previously present as second part of the Maneuver Path Index, has moved to the Manoeuvre geometry table MN. The Sequential Number values are updated accordingly.

**NOTE:** Calculated/Derived Prohibited Maneuver is an maneuver type that is created as an

alternative for Restricted Maneuvers and Blocked Passages.

**Table 14: MP Maneuver Path Index**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Transportation Element Sequential Number within the Maneuver	5	N	0
TRPELID	Transportation Element Identification	15	N	0
TRPELTYP	Transportation Element Type <ul style="list-style-type: none"><li>• 4110: Road Element</li><li>• 4130: Ferry Connection Element</li></ul>	4	N	0

## SignPost Information

The “Signpost”, “Signpost Path Index”, “Signpost Information” tables (see Table 15, Table 16, and Table 17) contain Signpost information and the Attributes relating to position and content. The “Signpost” table contains the Junction geometry of the decision point on the signpost path.

**Table 15: SG Signpost, Geometry**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 2128: Signpost	4	N	0
JNCTID	Signpost Junction Identification	15	N	0

The “Signpost Path Index” table (see Table 16) describes the path of a Signpost: Start TRPELID, Junction of the Traffic Sign location, second up to end TRPELID. The Sequential Number (SEQNR) Attribute contains the exact position that an Element occupies in a Signpost Path chain.

**NOTE:** The Junction is removed from the Index and is now moved to the SG geometry table!  
Therefore the sequence number value of the elements is updated accordingly!

**Table 16: SP Signpost Path Index**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Transportation Element Sequential Number within the Signpost Path	5	N	0
TRPELID	Transportation Element Identification	15	N	0
TRPELTYP	Transportation Element Type • 4110: Road Element • 4130: Ferry Connection Element	4	N	0

The “Signpost Information” table (see Table 17) contains textual and/or pictogram content.

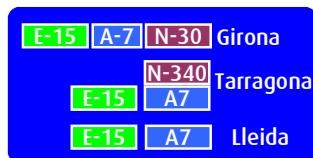
**Table 17: SI Signpost Information**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number of the Destination Set	5	N	0
DESTSEQ	Sequential Number within the Destination Set	5	N	0
INFOTYP	Information Type of the Textual Content (see Note)	2	C	-

**Table 17: SI Signpost Information (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
RNPART	Route Number Part (Only applicable if Signpost contains a Route Number.) Within a "Route Number Group" the SEQNR and DESTSEQ will remain the same! <ul style="list-style-type: none"> <li>• 0: Not Part of Route Number Info on Signpost</li> <li>• 1: In case of Route Number</li> <li>• 2: In case of Route Number Type</li> <li>• 3: In case of Validity Direction</li> <li>• 4: In case of Route Directional</li> </ul>	1	N	0
TXTCONT	Textual Content of a Traffic Sign (Destination Information) <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
TXTCONTLC	Textual Content Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-
CONTYP	Connection information <ul style="list-style-type: none"> <li>• 0: Undefined</li> <li>• 1: Branch</li> <li>• 2: Towards</li> <li>• 3: Exit</li> </ul>	1	N	0
AMBIG	Ambiguous Information <ul style="list-style-type: none"> <li>• 0: Not Ambiguous</li> <li>• 1: Ambiguous</li> </ul>	1	N	0

**NOTE:** RNPART currently contains only values 0 and 1.



*[Destination Set Number]/[Sequence In Destination Set] for each destination information for this signpost will be:  
 1.1/E15; 1.2/A7; 1.3/N30; 1.4/Girona  
 2.1/N340; 2.2/E15; 2.3/A7; 2.4/Tarragona  
 3.1/E15; 3.2/A7; 3.3/Lleida*

**NOTE:** Destination information contains following parts

Overview "INFOTYP" Elements:

- 1 Destination Set Number
- 2 Destination Set Part Number
- 3 Composite Route Number (Route Number, Route Number Type, Composite Route Number Directional (Validity Direction, Route Directional))  
OR  
Exit Name  
OR  
Exit Number  
OR  
Other Destination  
OR  
Pictogram  
OR  
Place Name  
OR  
Street Name

Other Destination Information Parts:

- 4 Connection Information
  - 0 : Undefined
  - 1 : Branch Information
  - 2 : Towards Information
  - 3 : Exit
- 5 Ambiguous information
  - 0 : Not Ambiguous
  - 1 : Ambiguous

Pictogram Code:

- 1 : Airport
- 2 : Bus Station
- 3 : Fair
- 4 : Ferry Connection
- 5 : First-aid Post
- 6 : Harbour
- 7 : Hospital
- 8 : Hotel / Motel
- 9 : Industrial Area

- 10 : Information Center
- 11 : Parking Facility
- 12 : Petrol Station
- 13 : Railway Station
- 14 : Rest Area
- 15 : Restaurant
- 16 : Toilet

**Table 18: TS Traffic Sign, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 7220: Traffic Sign	4	N	0
SIGNTYP	Traffic Sign Type • -1: Undefined • 1: Traffic Light • 2: Speed Indication	2	N	0
POSITIO	Traffic Sign Position • 0: Not Available • 1: Left • 2: Right • 3: Left & Right • 4: Above	1	N	0
SIGNCLASS	Traffic Sign Class • -1: Not Applicable • 0: Normal • 1: Variable	2	N	0

**Table 19: TT Traffic Sign Along Road Element**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type 2300: Traffic Sign Along Road Element	4	N	0
POIID	POI Identification	15	N	0
TRPELID	Identification of the Related Transportation Element	15	N	0

**Table 19: TT Traffic Sign Along Road Element**

Abbr.	Full Name and Attribute Values	W	T	D
VALDIR	Validity Direction <ul style="list-style-type: none"><li>• 1: Valid in Both Line Directions</li><li>• 2: Valid in Positive Line Direction</li><li>• 3: Valid in Negative Line Direction</li></ul>	1	N	0
POSITION	Position of the Traffic Sign on the Transportation element <ul style="list-style-type: none"><li>• 1: Left</li><li>• 2: Right</li><li>• 3: Left &amp; Right</li><li>• 4: Above</li></ul>	1	N	0

## TMC Information

---

### Level 1 TMC Information

**Table 20: RD TMC information on Road Element**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
RDSTMC	Level 1 RDS/TMC Chain Info (ABCCDEEEEE)	10	C	-
TMCPATHID	Level 2 TMC Path Identification	15	N	0
TMCPATHID	TMC Master Path ID (only for Technical dataset crossing paths)	20	C	0

This table provides RDS-TMC chain information on transportation elements for all locations captured on the network with reference to the TMC path(s) in which they are located. The same Transportation Element might be repeated if several locations are located on it and/or if they are part of several TMC Paths.

**Definition of "ABCCDEEEEE" RDS/TMC info:**

A: Direction (+ or -)

B: Country Code

CC: TMC Location Code

D: TMC Direction of the chain

EEEEEE: TMC Point Location Code

For more information see Section TMC Chain information, Theme Road & Ferries of the MultiNet Data Specifications version 3.4

## Level 2 TMC Information

**Table 21: TL TMC Location**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 9020: TMC Location</li> </ul>	4	N	0
TMCLSTVER	TMC Location Reference	8	C	-
TMCLSTVER	TMC Table/List Version Number	10	C	-

**Table 22: TC TMC Location Index**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
TRPELID	Transportation Element Identification	15	N	0
TRPELTYP	Transportation Element Type <ul style="list-style-type: none"> <li>• 4120: Junction (T_JNCT / F_JNCT)</li> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> </ul>	4	N	0

**Table 23: TP TMC Path**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 9021: TMC Path</li> </ul>	4	N	0
TMCLSTVER	TMC Path Information <ul style="list-style-type: none"> <li>• Part 1: Start TMC Location Code</li> <li>• /</li> <li>• Part 2: End TMC Location Code</li> <li>• /</li> <li>• Part 3: Path Direction:               <ul style="list-style-type: none"> <li>• +: Start to End</li> <li>• -: End to Start</li> </ul> </li> </ul>	21	C	-

**Table 23: TP TMC Path (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
TMCTAB	TMC Table Reference	3	C	-
TMCLSTVER	TMC Table/List Version Number	10	C	-
TMCMPPATHID (4W)	TMC Master Path ID (only for Technical dataset crossing paths)	20	C	-
MPSEQNR	Sequence of the path in its master path	5	N	0

The “TMC Path Index” table (see Table 24) describes the path of a TMC Path Relationship. The Sequential Number (SEQNR) Attribute contains the exact position that an Element occupies in a TMC Path Relationship chain.

**Table 24: TG TMC Path Index**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Transportation Element Sequential Number within the TMC Path, representing the order from start to end location of the Transportation Element within the TMC Path.	5	N	0
TRPELID	Transportation Element Identification	15	N	0
TRPELTYP	Transportation Element Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> </ul>	4	N	0

The “TMC Path Location Index” table (see Table 25) describes the sequence of the TMC Locations along its related TMC Path along with a simplified geographical point representation. This Table is only available for USA. For other countries this table cannot be provided because of licensing issues.

**Table 25: TI TMC PATH Location Index, Geometry**

Abbr.	Full Name and Attribute Values	W	T	D
ID	TMC PATH Identification	15	N	0
SEQNR	TMC Location Sequential Number within the TMC Path representing the order from start to end.	5	N	0
LOCID	TMC Location Identification	15	N	0
NAME	Location Name (or street name along location)	70	C	-

## Level 2 Route Network Information

---

Tele Atlas has grouped Road Elements into higher level complex features. (See the [MultiNet User Guide Shapefile Format](#) for more information.) Level 2 roads form a more-generalized representation of the Road Network. The first and last Elements of a Level 2 Road are always an Intersection (see Table 27 and Table 28).

The “Level 2 Roads” table (see Table 26) describes all of the Transportation Elements that form a functional unit between the two Intersections.

**Table 26: 2R Level 2 Roads**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 4140: Level 2 Road</li></ul>	4	N	0
SEQNR	Sequential Number	5	N	0
ELEM_TYP	Element Type <ul style="list-style-type: none"><li>• 4145: Intersection</li><li>• 4110: Road Element</li><li>• 4130: Ferry Connection Element</li><li>• 4165: Address Area Boundary Element</li></ul>	4	N	0
ELEMID	Element Identification	15	N	0

The “Intersections” table (see Table 27) contains additional Attributes for the Level 2 Road Network Intersections.

**Table 27: IS Intersections**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 4145: Intersection</li></ul>	4	N	0
INTTYP	Intersection Type <ul style="list-style-type: none"><li>• 0: No Type (default)</li><li>• 1: Freeway Intersection</li><li>• 2: Complex Street Intersection</li></ul>	1	N	0

**Table 27: IS Intersections (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
FWINTTYP	Freeway Intersection Type <ul style="list-style-type: none"> <li>• 0: Not Applicable (default)</li> <li>• 1: Motorway Exit/Access</li> <li>• 2: Motorway Interchange</li> <li>• 3: Others</li> </ul>	1	N	0
NAME	Official Name / Number	70	C	-
NAMELC	Official Name Language Code	3	C	-

The “Intersections Index” table (see Table 28) is an index between the “Intersections” table (see Table 27) and the Network table (see Table 1). It details the sequence number to all the Elements between two Intersections.

**Table 28: IG Intersections Index**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
ELEM_TYP	Element Type <ul style="list-style-type: none"> <li>• 4120: Junction</li> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 4165: Address Area Boundary Element</li> </ul>	4	N	0
ELEMID	Element Identification	15	N	0

**Table 29: CF Center Point of Freeway Intersection, Geometry**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0

## Extended Route Restriction Information

---

A Restriction limits access to all or part of a Transportation Element. The “Restrictions” table (see Table 30) includes the necessary Attributes.

**Table 30: RS Restrictions**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4110: Road Element</li> <li>• 4130: Ferry Connection Element</li> <li>• 9401: Bifurcation</li> <li>• 9855: Permitted Maneuver</li> <li>• 2101: Calculated Prohibited Maneuver</li> <li>• 2102: Restricted Maneuver</li> <li>• 2103: Prohibited Maneuver</li> <li>• 2104: Priority Maneuver</li> </ul>	4	N	0
RESTRTYP	Restriction Type <ul style="list-style-type: none"> <li>• Blank (Only in case of Maneuvers)</li> <li>• DF: Direction of Traffic Flow</li> <li>• BP: Blocked Passage</li> <li>• SR: Special Restriction</li> <li>• 6Z: Construction Status</li> <li>• TR: Toll Information</li> <li>• 4B: Bifurcation Type</li> <li>• 8I: Prohibited Maneuver Type</li> <li>• 6Q: Vehicle Restriction</li> </ul>	2	C	-

**Table 30: RS Restrictions (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
RESTRVAL	<p><b>Restriction Type Value</b>          Default Value = "-1" (in case of Maneuvers only)</p> <p><b>DF &amp; 6Q:</b></p> <ul style="list-style-type: none"> <li>• 2: Closed in Positive Direction</li> <li>• 3: Closed in Negative Direction</li> <li>• 4: Closed in Both Directions</li> </ul> <p><b>BP:</b></p> <ul style="list-style-type: none"> <li>• 1: Physically Blocked at Start Junction</li> <li>• 2: Physically Blocked at End Junction</li> </ul> <p><b>SR:</b></p> <ul style="list-style-type: none"> <li>• 2: Not Publicly Accessible</li> </ul> <p><b>6Z:</b></p> <ul style="list-style-type: none"> <li>• 1: Under Construction in Both Directions</li> <li>• 2: Under Construction in Line Direction</li> <li>• 3: Under Construction Opposite of Line Direction</li> </ul> <p><b>TR:</b></p> <ul style="list-style-type: none"> <li>• 1: Toll Road in Both Directions</li> <li>• 2: Toll Road in Negative Direction</li> <li>• 3: Toll Road in Positive Direction</li> </ul> <p><b>4B:</b></p> <ul style="list-style-type: none"> <li>• 1: Multi Lane Fork</li> <li>• 2: Simple Fork</li> <li>• 9: Exit Bifurcation</li> </ul> <p><b>8I:</b></p> <ul style="list-style-type: none"> <li>• 0: Prohibited Maneuver</li> <li>• 1: Implicit Turn</li> </ul>	2	N	0

**Table 30: RS Restrictions (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
VT	<p>Vehicle Type:</p> <ul style="list-style-type: none"> <li>• -1: Not Applicable</li> <li>• 0: All Vehicle Types</li> <li>• 11: Passenger Cars</li> <li>• 12: Residential Vehicle</li> <li>• 15: Emergency Vehicle (US Only) (Only in combination with "RESTRTYP" 6Q)</li> <li>• 16: Taxi</li> <li>• 17: Public Bus</li> <li>• 20: Delivery Truck</li> <li>• 21: Transport Truck (US Only)</li> <li>• 22: Motorcycle (US Only)</li> <li>• 23: Mopet (US Only)</li> <li>• 24: Bicycle (Only in combination with "RESTRTYP" 6Q)</li> <li>• 25: Pedestrian (US Only) (Only in combination with "RESTRTYP" 6Q)</li> </ul>	2	N	0

**NOTE:**

**VT 0 = VT 11 + 12 +16 + 17 + 20 + 21 + 22 + 23 for US Data**

**VT 0 = VT 11 + 12 + 16 + 17 + 20 for European Data**

**VT 0 + 6Q => VT 15 + 24 + 25 for US Data**

**VT 0 + 6Q does not exist in European Data, 6Q always in combination with VT 24**

Following Table contains all available Time Domains on the restrictions described in the "Restrictions" Table (RS)

**Table 31: TD Time Domains**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
SUBSEQNR	Sub-Sequential Number	1	N	0

**Table 31: TD Time Domains (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
TIMEDOM	Time Domain (as specified in Appendix 2 "GDF 4.0 Time Domains" on page 135)  <b>NOTE:</b> If a time domain is longer than 254 characters, the extra characters will get an additional Sub-Sequential Number (SUBSEQNR VALUE) and will be listed in TIMEDOM.	254	C	-

**Table 32: SR Speed Restrictions**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number of the Restriction on the Feature	5	N	0
SPEED	Speed Restriction	3	N	0
SPEEDTYP	Speed Type <ul style="list-style-type: none"><li>• 0: Undefined</li><li>• 1: Maximum Speed</li><li>• 2: Recommended Speed</li><li>• 3: Lane Dependent Speed</li></ul>	1	C	-
VALDIR	Validity Direction <ul style="list-style-type: none"><li>• 1: Valid in Both Directions</li><li>• 2: Valid Only in Positive Direction</li><li>• 3: Valid Only in Negative Direction</li></ul>	1	N	0
VT	Vehicle Type <ul style="list-style-type: none"><li>• -1: Not Applicable</li><li>• 0: All Vehicle Types</li><li>• 11: Passenger Cars</li><li>• 12: Residential Vehicles</li><li>• 16: Taxi</li><li>• 17: Public Bus</li><li>• 18: Private Bus</li><li>• 20: Delivery Truck</li><li>• 21: Transport Truck (US Only)</li><li>• 22: Motorcycle</li><li>• VT 98 = VT 11 + VT 12 + VT 16 + VT 17 + VT 22</li><li>• VT 99 = VT 18 + VT 20 + VT 21</li></ul>	2	N	0

**Table 32: SR Speed Restrictions (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
VERIFIED	Verified <ul style="list-style-type: none"> <li>• 0: Not Verified (default)</li> <li>• 1: Verified</li> </ul>	1	N	0

**NOTE:** The Unit of the SPEED value is defined Country based and is listed in the A0 layer “[A0 Administrative Area Order 0 Country, Geometry with Basic Attributes](#)” in the field “MUNIT”.

**NOTE:** VT 98 and VT 99 are new “Composite” Vehicle Types introduced to limit the number of speed restriction records. VT 98 + VT 99 = VT 0.

**Table 33: ST Speed Restriction Time Domains**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number of the Speed Restriction on the Feature	5	N	0
SUBSEQNR	Sub-Sequential Number	1	N	0
TIMEDOM	Time Domain (as specified in Appendix 2 “GDF 4.0 Time Domains” on page 135)  <b>NOTE:</b> If a time domain is longer than 254 characters, the extra characters will get an additional Sub-Sequential Number (SUBSEQNR VALUE) and will be listed in TIMEDOM.	254	C	-

## Lane Information

---

**Table 34: LL Lane Divider Information**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
DIVIDERTYP	Lane Divider Type <ul style="list-style-type: none"> <li>• 1 : Interrupted Line with Long Lines</li> <li>• 2 : Double Solid Line</li> <li>• 3 : Single Solid Line</li> <li>• 4 : Combination of Single Solid &amp; Interrupted Line</li> <li>• 5 : Combination of an Interrupted and a Solid Line</li> <li>• 6 : Interrupted Line with Short Lines</li> </ul>	1	N	0
VALIDITY	Lane Dependent Validity	20	C	-

**Table 35: LD Lane Direction Information**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
DIRECTION	Lane Direction <ul style="list-style-type: none"> <li>• 0 : No Direction Indicated</li> <li>• 1 : Straight</li> <li>• 2 : Slight Right</li> <li>• 4 : Right</li> <li>• 8 : Sharp Right</li> <li>• 16 : U-turn</li> <li>• 32 : Sharp Left</li> <li>• 64 : Left</li> <li>• 128 : Slight Left</li> </ul>	3	N	0
VALIDITY	Lane Dependent Validity	20	C	-

**Table 36: LF Direction of Traffic Flow for Lane**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequence Number	5	N	0
ONEWAY	Direction of Traffic Flow for lane <ul style="list-style-type: none"> <li>• Blank: Open in Both Directions (default)</li> <li>• FT: Open in Positive Direction</li> <li>• N: Closed in Both Directions</li> <li>• TF: Open in Negative Direction</li> </ul>	2	C	-
VT	Vehicle Type <ul style="list-style-type: none"> <li>• 0: All Vehicle Types</li> <li>• 11: Passenger Cars</li> <li>• 12: Residential Vehicles</li> <li>• 16: Taxi</li> <li>• 17: Public Bus</li> <li>• 18: Private Bus</li> <li>• 20: Delivery Truck</li> <li>• 21: Transport Truck (US Only)</li> <li>• 22: Motorcycle</li> <li>• VT 98 = VT 11 + VT 12 + VT 16 + VT 17 + VT 22</li> <li>• VT 99 = VT 18 + VT 20 + VT 21</li> </ul>	2	N	0
VALIDITY	Lane Dependent Validity	20	C	-

**Table 37: LT Time Domains for Direction of Traffic Flow for Lane**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Sequential Number	5	N	0
SUBSEQNR	Sub-Sequential Number	1	N	0
TIMEDOM	Time Domain (as specified in Appendix 2 "GDF 4.0 Time Domains" on page 135)  <b>NOTE:</b> If a time domain is longer than 254 characters, the extra characters will get an additional Sub-Sequential Number (SUBSEQNR VALUE) and will be listed in TIMEDOM.	254	C	-

**Table 38: LN Lane Connectivity Information, Geometry of Lane Connectivity with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type 9860 : Lane Connectivity	4	N	0
FROMTO	Connected Lanes (From Lane / To Lane)	5	C	-
JNCTID	Junction Identification of the Location of the Sign	15	N	0

**Table 39: LP Lane Connectivity Path**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
SEQNR	Transportation Element Sequential Number within the Connectivity Path	5	N	0
TRPELID	Transportation Element Identification	15	N	0
TRPELTYP	Transportation Element Type • 4110: Road Element	4	N	0

# Streets

The street layers contain road geometry divided on Functional Road Class, and Ferry and Address Area geometry layers with only basic attributes. These layers are provided to facilitate display. Stubbles are not included.

The Road and Ferry Elements are in separate tables for ease of use. For the Road layers 00, 01, 02, 03, 04 and 05 the road geometry is dissolved to speed up visualization.

Table Name	Table #	Page
00 Street 0, Geometry of Motorways with Basic Attributes	40	51
01 Street 1, Geometry of Main Roads with Basic Attributes	41	52
02 Street 2, Geometry of Other Major Roads with Basic Attributes	42	53
03 Street 3, Geometry of Secondary Roads with Basic Attributes	43	54
04 Street 4, Geometry of Local Connecting Roads with Basic Attributes	44	55
05 Street 5, Geometry of Local Roads of High Importance with Basic Attributes	45	56
06 Street 6, Geometry of Local Roads with Basic Attributes	46	57
07 Street 7, Geometry of Local Roads of Minor Importance with Basic Attributes	47	58
08 Street 8, Geometry of Other Roads with Basic Attributes	48	59
FE Ferries, Geometry with Basic Attributes	49	61
AA Address Areas, Geometry with Basic Attributes	50	63

Table 40: 00 Street 0, Geometry of Motorways with Basic Attributes

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"><li>• 0: Motorways</li></ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"><li>• Blank: Not Applicable</li></ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"><li>• Blank: Not Applicable</li></ul>	3	C	-

**Table 40: 00 Street 0, Geometry of Motorways with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 41: 01 Street 1, Geometry of Main Roads with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 1: Roads not belonging to 'Main Road' Major Importance</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 41: 01 Street 1, Geometry of Main Roads with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 42: 02 Street 2, Geometry of Other Major Roads with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 2: Other Major Roads</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 42: 02 Street 2, Geometry of Other Major Roads with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 43: 03 Street 3, Geometry of Secondary Roads with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 3: Secondary Roads</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 43: 03 Street 3, Geometry of Secondary Roads with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 44: 04 Street 4, Geometry of Local Connecting Roads with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 4: Local Connecting Roads</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 44: 04 Street 4, Geometry of Local Connecting Roads with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 45: 05 Street 5, Geometry of Local Roads of High Importance with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 5: Local Roads of High Importance</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 45: 05 Street 5, Geometry of Local Roads of High Importance with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 46: 06 Street 6, Geometry of Local Roads with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 6: Local Roads</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 46: 06 Street 6, Geometry of Local Roads with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 47: 07 Street 7, Geometry of Local Roads of Minor Importance with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 7: Local Roads of Minor Importance</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 47: 07 Street 7, Geometry of Local Roads of Minor Importance with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 48: 08 Street 8, Geometry of Other Roads with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 8: Others</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-

**Table 48: 08 Street 8, Geometry of Other Roads with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• TF: Positive Direction</li> <li>• FT: Negative Direction</li> </ul>	2	C	-

**Table 49: FE Ferries, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
FRC	Functional Road Class <ul style="list-style-type: none"> <li>• 0: Motorways</li> <li>• 1: Roads not belonging to 'Main Road' Major Importance</li> <li>• 2: Other Major Roads</li> <li>• 3: Secondary Roads</li> <li>• 4: Local Connecting Roads</li> <li>• 5: Local Roads of High Importance</li> <li>• 6: Local Roads</li> <li>• 7: Local Roads of Minor Importance</li> <li>• 8: Others</li> </ul>	2	N	0
NAME	Official Street Name or Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	70	C	-
NAMELC	Official Street Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-
NAMETYP	Street Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• RN: Route Number</li> </ul>	2	C	-
ROUTENUM	Primary Route Number <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	10	C	-
RTETYP	Route Number Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> <li>• 0: Unknown</li> <li>• 1..99: Type 1..99</li> </ul>	2	N	0
RTEDIR	Route Directional (USA Only) <ul style="list-style-type: none"> <li>• Blank: Not Applicable (default)</li> <li>• NB: Northbound</li> <li>• EB: Eastbound</li> <li>• SB: Southbound</li> <li>• WB: Westbound</li> </ul>	2	C	-

**Table 49: FE Ferries, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
RTEDIRVD	Route Directional Validity Direction <ul style="list-style-type: none"><li>• Blank: Not Applicable (default)</li><li>• TF: Positive Direction</li><li>• FT: Negative Direction</li></ul>	2	C	-
FT	Ferry Type <ul style="list-style-type: none"><li>• 0: No Ferry</li><li>• 1: Ferry Operated by Ship or Hovercraft</li><li>• 2: Ferry Operated by Train</li></ul>	1	N	0

Address Areas (see Table 50) are currently only in Europe. An Address Area is typically used as an Area Feature, and for geocoding rather than for routing. The “Address Areas” Geometry table includes Attributes for the bounding Transportation Elements and other necessary Features.

**Table 50: AA Address Areas, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Ferry Type • 4160: Address Area	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name • Blank: Not Applicable	70	C	-
NAMELC	Official Name Language Code • Blank: Not Applicable	3	C	-

# Railways

**Table 51: RR Railways, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 4210: Railway Element	4	N	0
F_JNCTID	From Junction Identification	15	N	0
F_JNCTTYP	From Junction Type • 0: Junction (default) • 4: Country Border Crossing	1	N	0
T_JNCTID	To Junction Identification	15	N	0
T_JNCTTYP	To Junction Type • 0: Junction (default) • 4: Country Border Crossing	1	N	0
METERS	Length (meters)	15	N	1
NAME	Official Name • Blank: Not Applicable	70	C	-
NAMELC	Official Name Language Code • Blank: Not Applicable	3	C	-
F_ELEV	Begin Z Level • 0: Ground Z Level (default) • -9..9: Level -9 to Level 9, resp. from Lowest to Highest Z Level	2	N	0
T_ELEV	End Z Level • 0: Ground Z Level (default) • -9..9: Level -9 to Level 9, resp. from Lowest to Highest Z Level	2	N	0

# Points of Interest

Table Name and Code	Table #	Page
PI Points of Interest, Geometry with Basic Attributes	52	65
PINM POI Names	53	66
PIEA Extended POI Attributes	54	66
List of Present Extra Attributes	55	67
PR Service Belonging to Service Relation	56	72
PE POI at Junction Relation	57	72
VR Vicinity Relation	58	72
SA Service In Named Area	59	73

**Table 52: PI Points of Interest, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • GDF POI Feature Class	4	N	0
IMPORT	Importance • 0: Not Applicable (default) • 1: National • 2: Local	1	N	0
ARNAMELC	Area Official Name Language Code • Blank: Not Applicable	3	C	-
NAME	Official Name	100	C	-
STNAME	Street Name	70	C	-
STNAMELC	Official Street Name Language Code	3	C	-
HSNUM	House Number	10	C	-
POSTCODE	Postal Code	10	C	-
MUNID	Municipality Identification (A8: ID)	15	N	0
MUNCD	Municipality Official Code	11	C	-
MUNNAME	Municipality Name	70	C	-

**Table 52: PI Points of Interest, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
BUANAME	Built-up Area Official Name	70	C	-
TELNUM	Telephone Number	25	C	-
FAXNUM	Fax Number	25	C	-
EMAIL	E-Mail Address	70	C	-
HTTP	Internet Address	70	C	-
BRANDNAME	Brand Name	70	C	-
COMPNAME	Company Name	70	C	-
CLTRPELID	Closest Transportation Element Identification	15	N	0
RELPOS	Relative Position • -1: Default	3	N	0
EXTPOIID	External Point of Interest Identification	50	C	0
ADDRPID	Address Point Identifier	15	N	0

**Table 53: PINM POI Names**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • POI GDF Feature Class	4	N	0
NAMETYP	Name Type • ON: Official Name • AN: Alternate Name	2	C	-
NAME	Name	100	C	-
NAMELC	Name Language Code	3	C	-

**Table 54: PIEA Extended POI Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • POI GDF Feature Class	4	N	0
ATTRTYP	Attribute Type • MultiNet GDF Attribute Type code	2	C	-
ATTRVALUE	Attribute Value • MultiNet GDF Attribute Value	70	C	-

*Major Road Feature (9M)* is to be found in the Extra Attribute Table (PIEA).

See Table 55 “List of Present Extra Attributes” on page 67.

**NOTE:** Unlike the format of the previous tables, Table 55 lists the extra Attributes for the extended POIs in Table 54.

**Table 55: List of Present Extra Attributes**

Name (FEATTYP)	ATTTYP	Description	ATTRVALUE
Airline Access (7356)	AD	1: Departure	1
		2: Arrival	2
		3: Departure & Arrival	3
	NI	1: Domestic	1
		2: International	2
		3: Domestic & International	3

**Table 55: List of Present Extra Attributes (Continued)**

Name (FEATTYP)	ATTTYP	Description	ATTVALUE
Factory Outlet (9648)	1T (Product Category)	0: Undefined	0
		1: Antiques	1
		2: Arts	2
		3: Audio/Video/Photo	3
		4: Bags & Leather ware	4
		5: Beds, blankets, mattresses & accessories	5
		6: Beverages	6
		7: Bicycles & accessories	7
		8: Boats	8
		9: Cars & automotive	9
		10: Carpets	10
		11: Christmas articles	11
		12: Clothes (children)	12
		13: Clothes (men)	13
		14: Clothes (women)	14
		15: Computers & accessories	15
		16: Cosmetics	16
		17: Decorations	17
		18: Electrical appliances	18
		19: Flowers	19
		20: Foam & plastics	20
		21: Food	21
		22: Furniture	22
		23: Gifts	23
		24: Glassware, ceramics & china	24
		25: Haberdashery	25
		26: Household	26

**Table 55: List of Present Extra Attributes (Continued)**

Name (FEATTYP)	ATTRTYP	Description	ATTRVALUE
Factory Outlet (9648)	1T (Product Category)	27: Jewelry & watches	27
		28: Lights	28
		29: Motorcycles & accessories	29
		30: Needlework & craftwork	30
		31: Office supplies	31
		32: Shoes	32
		33: Sports & leisure	33
		34: Table cloth	34
		35: Textiles, wool & furs	35
		36: Tools	36
		37: Toys & children's articles	37
		38: Umbrellas	38
		39: Wellness	39
Government Office (7367)	9G (Type)	0: National (Order 0)	0
		1..7: Order 1..7	1..7
		8: Municipality (Order 8)	8
		99: Supra National	99
Mountain Peak (9364)	6P	Height of Peak (meters)	-
Open Parking Area (7369)	80	1: Car Pool Facility Available	1
	9P	0: Undefined	0
		1: Park and Ride Facility Available	1
	8K (Parking Size)	1: < 50 Places	1
		2: 50 – 100 Places	2
		3: > 100 Places	3
Parking Garage (7313)	9P	0: Undefined	0
		1: Park and Ride Facility Available	1
	8K(Parking Size)	1: < 50 Places	1
		2: 50 – 100 Places	2
		3: > 100 Places	3
Petrol Station (7311)	6F (Facilities)	1: LPG Available	1
	9M (Major Road Feature)	1: Major Road Feature	1

**Table 55: List of Present Extra Attributes (Continued)**

Name (FEATTYP)	ATTTYP	Description	ATTVALUE
Railway Station (7380)	RY (Type)	11: International 12: National 13: (Sub)urban 3: Underground / Metro	11 12 13 3
Rest Area (7395)	8Q	1: Truck Stop	1
	8U (Facilities)	1: Hotel / Motel	1
		2: Parking Facility	2
		3: Petrol Station	3
		4: Restaurant	4
		5: WC	5
		6: Kiosk	6
Restaurant (7315)	9F (Food Type)	0: Other 1: French 2: Belgian 3: Chinese 4: German 5: Greek 6: Italian 7: Indian 8: Japanese 9: Oriental 10: Swiss 11: Mexican 12: Thai 13: Dutch 14: Vietnamese 15: American 16: Austrian 17: British 18: Caribbean 19: African 20: Hawaiian 21: Indonesian 22: Korean 23: Filipino	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

**Table 55: List of Present Extra Attributes (Continued)**

Name (FEATTYP)	ATTTYP	Description	ATTRVALUE
Restaurant (7315)	9F	24: Surinamese	24
		25: Hungarian	25
		26: Jewish	26
		27: Polish	27
		28: Russian	28
		29: Turkish	29
		30: Middle-Eastern	30
		31: Spanish	31
		32: Portuguese	32
		33: Maltese	33
		34: Californian	34
		35: Latin-American	35
		36: Canadian	36
		100: Vegetarian	100
		101: Fast Food	101
		102: Grill	102
		103: Sea Food	103
		104: Sandwich	104
		105: Steak House	105
		106: Bistro	106
		107: Barbecue	107
		254: Local	254
		255: Unknown	255
Traffic Sign (7220)	TS (Traffic Sign Class)	1 = Variable	1
All POI's	9D	Place Name	-
	9M	1: Major Road Feature	1
		2: Major Road Stubble	2
	7I	Street Identifier	-
	2E	Stable ID	-
	0B	Address Point ID	-
	4P	Admin Place Code	-

**NOTE:** For unlisted Features and Attributes please check the "All\_Codes" database on the Product Documentation CD.

**Table 56: PR Service Belonging to Service Relation**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Relationship Identification	15	N	0
FEATTYP	Relationship Type <ul style="list-style-type: none"> <li>• 1026: Service Belonging to Service</li> </ul>	4	N	0
POIID	Point of Interest Identification	15	N	0
POITYP	Point of Interest Feature Type <ul style="list-style-type: none"> <li>• POI/Settlement GDF Feature Class</li> </ul>	4	N	0
BELPOIID	POI Identification of the POI to which the former POI (POIID) belongs	15	N	0
BELPOITYP	Feature Type <ul style="list-style-type: none"> <li>• Belonging POI/Settlement GDF Feature Class</li> </ul>	4	N	0
ENTRYTYP	Entry Point Type <ul style="list-style-type: none"> <li>• 0: Not Applicable</li> <li>• 1: Main Entry Point</li> <li>• 2: Minor Entry Point</li> </ul>	1	N	0

**Table 57: PE POI at Junction Relation**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Relationship Identification	15	N	0
FEATTYP	Relationship Type <ul style="list-style-type: none"> <li>• 1024: Entry Point at Junction</li> </ul>	4	N	0
POIID	Point of Interest Identification	15	N	0
JNCTID	Junction Identification	15	N	0

**Table 58: VR Vicinity Relation**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Relationship Identification	15	N	0
FEATTYP	Relationship Type <ul style="list-style-type: none"> <li>• 9001: Vicinity Relationship</li> </ul>	4	N	0
POIID	Point Of Interest Identification	15	N	0
MUNCD	Municipality Code	11	C	-
MUNNAME	Municipality Name	70	C	-

**Table 58: VR Vicinity Relation (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
MUNNAMELC	Municipality Name Language Code	3	C	-

**Table 59: SA Service In Named Area**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Point Of Interest Identification	15	N	0
FEATTYP	Point Of Interest Feature Type	4	N	0
AREID	Area Identification	15	N	0
ARETYP	Area Feature Type <ul style="list-style-type: none"> <li>• 1165..1199: Administrative Place A ..Z</li> <li>• 9200: Index Area</li> </ul>	4	N	0

**NOTE:** Relations towards the Index areas and Admin Places are built based on MN relationship 1014 for all Services, Centers of Settlement and Entry Points.

# Center of Settlements

**Table 60: SM Center of Settlements, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 7379: Center of Settlement</li> </ul>	4	N	0
ARNAMELC	Area Official Name Language Code <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	3	C	-
NAME	Official Name	70	C	-
ADMINCLASS	Administrative Class <ul style="list-style-type: none"> <li>• 0: Capital of Country</li> <li>• 1..9: Capital of the Order 1..9 Area</li> <li>• 10: Others</li> <li>• 12: Class 12 (default)</li> </ul>	2	N	0
DISPCLASS	• Center of Settlement Display Class 1..12: Class 1..12	2	N	0
AXORDER	Lowest Administrative Area Order	1	N	0
AXID	Lowest Administrative Area Identification	15	N	0
AXCD	Lowest Administrative Area Official Code	15	C	-
AXNAME	Lowest Administrative Area Official Name	70	C	-
APID	Administrative Place C Identifier	15	N	0
APCD	Administrative Place C Official Code	15	C	-
APNAME	Administrative Place C Official Name	70	C	-
POSTCODE	Postal Code	10	C	-
BUAID	Built-up Area Identification	15	N	0
BUANAME	Built-up Area Official Name	70	C	-
CLTRPELID	Closest Transportation Element Identification	15	N	0
RELPOS	Relative Position <ul style="list-style-type: none"> <li>• -1: Default</li> </ul>	3	N	0
ADDRPID	Address Point Identifier	15	N	0

# Water Areas / Lines

Table Name	Table #	Page
WA Water Areas, Geometry with Basic Attributes	61	75
WL Water (Center/Border) Lines, Geometry with Basic Attributes	62	76

**Table 61: WA Water Areas, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4310: Water Element (Area)</li> </ul>	4	N	0
TYP	Water Element Type <ul style="list-style-type: none"> <li>• 0: No Type</li> <li>• 1: Oceans and Seas</li> <li>• 2: Lake</li> <li>• 7: Others (default)</li> </ul>	2	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
DISPCLASS	Water Display Class <ul style="list-style-type: none"> <li>• 1..5: Class 1 (Highest)..5 (Lowest, default)</li> </ul>	1	N	0

**Table 62: WL Water (Center/Border) Lines, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 4310: Water Line</li> <li>• 9315: Water Center Line</li> <li>• 9317: Water Shore Line</li> </ul>	4	N	0
TYP	Water Element Type <ul style="list-style-type: none"> <li>• 0: No Type</li> <li>• 1: Oceans and Seas</li> <li>• 2: Lake</li> <li>• 7: Others (default)</li> </ul>	2	N	0
METERS	Length (meters)	15	N	1
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
DISPCLASS	Water Display Class <ul style="list-style-type: none"> <li>• 1..5: Class 1 (Highest)..5 (Lowest, default)</li> </ul>	1	N	0

# Land Use and Land Cover

Table Name	Table #	Page
LU Land Use Areas, Geometry with Basic Attributes	63	77
LC Land Cover Areas, Geometry with Basic Attributes	64	79
List of Present Display Types	65	80

**Table 63: LU Land Use Areas, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• GDF Land Use Feature Class</li></ul>	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
DISPLATTYP	Display Attribute Type <ul style="list-style-type: none"><li>• Blank: Not Applicable</li></ul>	2	C	-
DISPLTYP	Display Type Value <ul style="list-style-type: none"><li>• -1: Not Applicable</li></ul>	4	N	0

**Table 63: LU Land Use Areas, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
CLASS	<p>Classification (Only for Park / University or College / Golf Course / Building)</p> <ul style="list-style-type: none"><li>• Park<ul style="list-style-type: none"><li>-1: Not Applicable (default)</li><li>1: Park</li><li>2: Monument</li><li>3: Preserve</li><li>4: Historic Site</li><li>5: Historical Park</li><li>6: Memorial</li><li>7: Battlefield</li><li>8: Cemetery</li><li>9: Recreation Area</li><li>10: Seashore</li><li>11: Lakeshore</li><li>12: River</li><li>13: Parkway</li><li>14: Wilderness Area</li></ul></li><li>• University or College<ul style="list-style-type: none"><li>-1: Not Applicable (default)</li><li>1: Class 1</li><li>2: Class 2</li><li>3: Class 3</li><li>4: Class 4</li></ul></li><li>• Golf Course<ul style="list-style-type: none"><li>-1: Not Applicable (default)</li><li>0: Not Publicly Accessible</li><li>1: Publicly Accessible</li></ul></li><li>• Building<ul style="list-style-type: none"><li>-1: Not Applicable (default)</li><li>1: Airport Terminal</li><li>2: Parking Garage</li></ul></li></ul>	2	N	0

**Table 63: LU Land Use Areas, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
IMPORT	Importance <ul style="list-style-type: none"> <li>• -1: Not Applicable (default)</li> <li>• 1: Major Importance</li> <li>• 2: Medium Importance</li> <li>• 3: Minor Importance</li> </ul>	2	N	0
ACRON	Acronym or Airport Code <ul style="list-style-type: none"> <li>• Acronym: Only for "University or College"</li> <li>• Airport Code: "Building" (7110), "Airport Ground" (9732), "Runway" (9776)</li> </ul>	20	C	-

**Table 64: LC Land Cover Areas, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• GDF Land Cover Feature Class</li> </ul>	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
DISPLATTYP	Display Attribute Type <ul style="list-style-type: none"> <li>• Blank: Not Applicable</li> </ul>	2	C	-
DISPLTYP	Display Type Value <ul style="list-style-type: none"> <li>• -1: Not Applicable</li> </ul>	4	N	0

**Table 65: List of Present Display Types**

LUC Type	Display Attribute Type	Description	Display Type Value
Beach/Dune/Sand Area (9710)	7S (Sand Area Type)	1: Beach / Dune 99: Others	1 99
Park / Garden (7170)	PT (Park Type)	1: City Park	1
		2: Regional or National Park	2
		3: Country Park	3
		4: State or Province Park	4
		5: National Park	5
Forest (7120)	5F (Forest Type)	1: City Forest	1
		2: Regional Forest	2
		3: County Forest	3
		4: State / Provincial Forest	4
		5: National Forest	5
Company Ground (9353)	8G	Company Ground Type: • 1: Phillips • 2: BMW • 3: Volkswagen • 4: Daimler-Chrysler • 5: Audi • 6: Ford • 7: Porsche • 8: SEAT • 9: Siemens • 10: Skoda • 11: Rover • 12: Opel • 13: Fiat • 14: Blaupunkt • 15: VDO	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

List of Land Use/Cover Features:

### **Building (7110)**

### **Forest and Semi-Natural Area**

- Beach, Dune and Plain Sand (9710)
- Forest (Woodland) (7120)

- Moors and Heathland (9725)

## **Island (7180)**

## **Park/Garden (7170)**

### **Artificial Surface**

- Airport Ground (9732)
- Airport Runway (9776)
- Amusement Park Ground (9733)
- Cemetery Ground (9788)
- Company Ground (9353)
- Golf course Ground (9744)
- Hospital Ground (9748)
- Industrial Area (9715)
- Industrial Harbour Area (9720)
- Institution (9780)
- Military Territory (9789)
- Other Land Use (9787)
- Shopping Center Ground (9790)
- Stadium Ground (9768)
- University or College Ground (9771)

**NOTE:** For unlisted Features, Attributes and Attribute Values please check the "All\_Codes" database on the Product Documentation CD.

# Built-up Areas

Table Name	Table #	Page
BU Built-up Areas, Geometry with Basic Attributes	66	82
BN Built-up Area Names	67	82
BE Built-up Area Extended Attributes	68	83
BA Built-up Area In Named Area	69	83

Table 66: BU Built-up Areas, Geometry with Basic Attributes

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 3110: Built-up Area</li></ul>	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
BUACODE	Built-up Area Code	15	C	-

Table 67: BN Built-up Area Names

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 3110: Built-up Area</li></ul>	4	N	0
NAMETYP	Name Type <ul style="list-style-type: none"><li>• ON: Official Name</li><li>• AN: Alternate Name</li></ul>	2	C	-
NAME	Name	70	C	-
NAMELC	Name Language Code	3	C	-

**Table 68: BE Built-up Area Extended Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 3110: Built-up Area</li> </ul>	4	N	0
ATTRTYP	Attribute Type <ul style="list-style-type: none"> <li>• MultiNet GDF Attribute Type Code</li> </ul>	2	C	-
ATTRVALUE	Attribute Value <ul style="list-style-type: none"> <li>• MultiNet GDF Attribute Value</li> </ul>	70	C	-

*Major Road Feature (9M)* is to be found in the Extra Attribute Table.

Values:

- 1 Major Road Feature
- 2 Major Road Stub

**Table 69: BA Built-up Area In Named Area**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Built-up Area Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 3110: Built-up Area</li> </ul>	4	N	0
AREID	Area Identification	15	N	0
ARETYP	Area Feature Type <ul style="list-style-type: none"> <li>• 1119: Administrative Area Order 8</li> <li>• 1165..1199: Administrative Place A..Z</li> <li>• 9200: Index Area</li> </ul>	4	N	0

**NOTE:** Relations towards the Index areas and Admin Places are built based on MN relationship 9203 for Built-up Areas.

Relations towards the Administrative Areas Order 8 are built based on the MN relationships 1007 for Built-up Areas.

# Administrative Areas

Tele Atlas has developed a hierarchical structure in order to display Administrative Areas. (See the [MultiNet User Guide Shapefile Format](#) for more information.)

The U.S. Administrative Areas:

- Country, Order 1      • State, Order 7
- County, Order 8      • Minor Civil Division (MCD), Order 9

Census Place (a U.S. city or other municipality) is in the Administrative Place (AP) table (see Table 86 on page 93).

Table Name	Table #	Page
A0 Administrative Area Order 0 Country, Geometry with Basic Attributes	70	85
A1 Administrative Area Order 1, Geometry with Basic Attributes	71	85
A2 Administrative Area Order 2, Geometry with Basic Attributes	72	85
A3 Administrative Area Order 3, Geometry with Basic Attributes	73	86
A4 Administrative Area Order 4, Geometry with Basic Attributes	74	87
A5 Administrative Area Order 5, Geometry with Basic Attributes	75	87
A6 Administrative Area Order 6, Geometry with Basic Attributes	76	88
A7 Administrative Area Order 7, Geometry with Basic Attributes	77	88
A8 Administrative Area Order 8 Municipality, Geometry with Basic Attributes	78	89
A9 Administrative Area Order 9 Sub-Municipality, Geometry with Basic Attributes	79	89
AI Area Replaced by Index Area	80	90
OL Official Languages	81	91
AN Administrative Area Names	82	91
AE Administrative Area Extended Attributes	83	91
AD Administrative Area Structure Definitions	85	92

**Table 70: A0 Administrative Area Order 0 Country, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1111: Administrative Area Order 0	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
MUNIT	Unit of Measurement • 0: Undefined (default) • 1: Kmh • 2: Mph This is not to be used in combination with the speed field in the NW table. These values always indicate "Kmh".	1	N	0

**Table 71: A1 Administrative Area Order 1, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1112: Administrative Area Order 1	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 72: A2 Administrative Area Order 2, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0

**Table 72: A2 Administrative Area Order 2, Geometry with Basic Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
FEATTYP	Feature Type • 1113: Administrative Area Order 2	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 73: A3 Administrative Area Order 3, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1114: Administrative Area Order 3	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 74: A4 Administrative Area Order 4, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1115: Administrative Area Order 4	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
ORDER04	Order 4 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 75: A5 Administrative Area Order 5, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1116: Administrative Area Order 5	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
ORDER04	Order 4 Administrative Area Code	11	C	-
ORDER05	Order 5 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 76: A6 Administrative Area Order 6, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1117: Administrative Area Order 6	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
ORDER04	Order 4 Administrative Area Code	11	C	-
ORDER05	Order 5 Administrative Area Code	11	C	-
ORDER06	Order 6 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 77: A7 Administrative Area Order 7, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1118: Administrative Area Order 7	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
ORDER04	Order 4 Administrative Area Code	11	C	-
ORDER05	Order 5 Administrative Area Code	11	C	-
ORDER06	Order 6 Administrative Area Code	11	C	-
ORDER07	Order 7 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 78: A8 Administrative Area Order 8 Municipality, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 1119: Administrative Area Order 8</li></ul>	4	N	0
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
ORDER04	Order 4 Administrative Area Code	11	C	-
ORDER05	Order 5 Administrative Area Code	11	C	-
ORDER06	Order 6 Administrative Area Code	11	C	-
ORDER07	Order 7 Administrative Area Code	11	C	-
ORDER08	Order 8 Administrative Area Code	11	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
POPCLASS	Population Class: <ul style="list-style-type: none"><li>• 0: Undefined</li><li>• 1: &gt;= 1 000 000</li><li>• 2: &gt;= 500 000 and &lt; 1 000 000</li><li>• 3: &gt;= 100 000 and &lt; 500 000</li><li>• 4: &gt;= 50 000 and &lt; 100 000</li><li>• 5: &gt;= 10 000 and &lt; 50 000</li><li>• 6: &lt;10 000</li></ul>	1	N	0
POP	Population	10	N	0

**Table 79: A9 Administrative Area Order 9 Sub-Municipality, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 1120: Administrative Area Order 9</li></ul>	4	N	0

**Table 79: A9 Administrative Area Order 9 Sub-Municipality, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ORDER00	Order 0 Administrative Area Code	3	C	-
ORDER01	Order 1 Administrative Area Code	11	C	-
ORDER02	Order 2 Administrative Area Code	11	C	-
ORDER03	Order 3 Administrative Area Code	11	C	-
ORDER04	Order 4 Administrative Area Code	11	C	-
ORDER05	Order 5 Administrative Area Code	11	C	-
ORDER06	Order 6 Administrative Area Code	11	C	-
ORDER07	Order 7 Administrative Area Code	11	C	-
ORDER08	Order 8 Administrative Area Code	11	C	-
ORDER09	Order 9 Administrative Area Code	15	C	-
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
POPCLASS	Population Class: <ul style="list-style-type: none"><li>• 0: Undefined</li><li>• 1: <math>\geq 1\ 000\ 000</math></li><li>• 2: <math>\geq 500\ 000</math> and <math>&lt; 1\ 000\ 000</math></li><li>• 3: <math>\geq 100\ 000</math> and <math>&lt; 500\ 000</math></li><li>• 4: <math>\geq 50\ 000</math> and <math>&lt; 100\ 000</math></li><li>• 5: <math>\geq 10\ 000</math> and <math>&lt; 50\ 000</math></li><li>• 6: <math>&lt; 10\ 000</math></li></ul>	1	N	0
POP	Population	10	N	0

**NOTE:** All administrative area layers are delivered once on the country level as a separate unit. The administrative area orders less than and equal to the partitioning level are also delivered per product partition level.

**Table 80: AI Area Replaced by Index Area**

Abbr.	Full Name and Attribute Values	W	T	D
AREID	Area Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 1111..1120: Administrative Area Order 0..9</li></ul>	4	N	0

**Table 80: AI Area Replaced by Index Area (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
INAREID	Area Identification	15	N	0
ARETYP	Feature Type • 9200: Index Area	4	N	0

**NOTE:** Relations towards the Index Areas are built based on MN relationship 9204.

**Table 81: OL Official Languages**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1111..1120: Administrative Area Order 0..9	4	N	0
AXORDER	Administrative Area Order	2	N	0
OL	Official Language	3	C	-

**Table 82: AN Administrative Area Names**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1111..1120: Administrative Area Order 0..9	4	N	0
NAMETYP	Name Type • ON: Official Name • AN: Alternate Name	2	C	-
NAME	Name	70	C	-
NAMELC	Name Language Code	3	C	-

**Table 83: AE Administrative Area Extended Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 1111..1120: Administrative Area Order 0..9	4	N	0

**Table 83: AE Administrative Area Extended Attributes (Continued)**

Abbr.	Full Name and Attribute Values	W	T	D
ATTTYP	Attribute Type <ul style="list-style-type: none"> <li>• MultiNet GDF Attribute Type Code</li> </ul>	2	C	-
ATTRVALUE	Attribute Value <ul style="list-style-type: none"> <li>• MultiNet GDF Attribute Value</li> </ul>	70	C	-

*Major Road Feature* (9M) is to be found in the Extra Attribute (AE) Table (see Table 84 “List of Present Extra Attributes” on page 92).

**NOTE:** The relationship *Place within Place* is also relevant for the *Administrative Areas*. The table containing this relationship is described in the section *Administrative Places*. See Table 87 “PP Place Within Place Relation” on page 94

**Table 84: List of Present Extra Attributes**

Name (FEATTYP)	ATTTYP	Description	ATTRVALUE
Administrative Areas (1111.. 1119)	9M	1: Major Road Feature	1
		2: Major Road Stubble	2
	2M	1: Tourist Municipality	1

The “Administrative Area Structure Definition” contains the definition of a certain Administrative Order level, e.g. “Municipality” for Administrative Order 8 Area, FEATTYP 1119. The definition is defined per country and can be listed for multiple languages.

**Table 85: AD Administrative Area Structure Definitions**

Abbr.	Full Name and Attribute Values	W	T	D
ORDER00	ISO Country Code	3	C	-
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 1111..1120: Administrative Area Order 0..9</li> </ul>	4	N	0
ADMSTRDEF	Administrative Structure Definition	70	C	-
NAMELC	Administrative Structure Definition Language Code	3	C	-

# Administrative Places

Table Name	Table #	Page
AP Administrative Places, Geometry with Basic Attributes	86	93
PP Place Within Place Relation	87	94
NP Administrative Place Names	88	95
EP Administrative Place Extended Attributes	89	95

For the U.S., the “Administrative Places” Geometry table (see Table 86) includes Census Place (city, town, township, etc.) boundaries.

**Table 86: AP Administrative Places, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 1165..1190: Administrative Place A..Z</li> </ul>	4	N	0
AXOWNID	Administrative Area Owner Identification	15	N	0
OWNORDER	Order Level of Administrative Area Owner	1	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
APCODE	Administrative Place Official Code	11	C	-
POPCLASS	Population Class <ul style="list-style-type: none"> <li>• 0: Undefined</li> <li>• 1: &gt;= 1 000 000</li> <li>• 2: &gt;= 500 000 and &lt; 1 000 000</li> <li>• 3: &gt;= 100 000 and &lt; 500 000</li> <li>• 4: &gt;= 50 000 and &lt; 100 000</li> <li>• 5: &gt;= 10 000 and &lt; 50 000</li> <li>• 6: &lt; 10 000</li> </ul>	1	N	0
POP	Population	10	N	0

**Table 87: PP Place Within Place Relation**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Relationship Identification	15	N	0
FEATTYP	Relationship Type <ul style="list-style-type: none"><li>• 2400: Place within Place</li></ul>	4	N	0
PLTYP	Feature Type <ul style="list-style-type: none"><li>• 1111..1120: Administrative Area Order 0..9</li><li>• 1165..1199: Administrative Place A..Z</li><li>• 9200: Index Area</li></ul>	4	N	0
PLID	Administrative Place Identification	15	N	0
BELPLTYP	Feature Type <ul style="list-style-type: none"><li>• 1111..1120: Administrative Area Order 0..9</li><li>• 1165..1199: Administrative Place A..Z</li><li>• 9200: Index Area</li></ul>	4	N	0
BELPLID	Place Identification of the Area to which the former Place (PLID) belongs	15	N	0
CLASS	Place within Place Classification <ul style="list-style-type: none"><li>• 0: Not Applicable</li><li>• 1: Administrative</li><li>• 2: Postal</li><li>• 3: Address-Significant</li><li>• 4: Useful for Reverse-geocoding</li></ul> <p>Only Values 0 and 3 are currently available.</p>	1	N	0

**Table 88: NP Administrative Place Names**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 1165..1190: Administrative Place A..Z</li> </ul>	4	N	0
NAMETYP	Name Type <ul style="list-style-type: none"> <li>• ON: Official Name</li> <li>• AN: Alternate Name</li> </ul>	2	C	-
NAME	Name	70	C	-
NAMELC	Name Language Code	3	C	-

**Table 89: EP Administrative Place Extended Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 1165..1190: Administrative Place A..Z</li> </ul>	4	N	0
ATTRTYP	Attribute Type <ul style="list-style-type: none"> <li>• MultiNet GDF Attribute Type Code</li> </ul>	2	C	-
ATTRVALUE	Attribute Value <ul style="list-style-type: none"> <li>• MultiNet GDF Attribute Value</li> </ul>	70	C	-

*Major Road Feature* (9M) is to be found in the Extended Attribute Table.

Values:

- 1 Major Road Feature
- 2 Major Road Stub

# Postal Districts

**Table 90: PD Postal Districts, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 3136: Postal District	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
POSTCODE	Postal Code (Zip Code® in the U.S.)	10	C	-

**Table 91: PDNM Postal District Names**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type • 3136: Postal District	4	N	0
POSTCODE	Postal Code (Zip Code® in the U.S.)	10	C	-
NAMETYP	Name Type • ON: Official Name • AN: Alternate Name Postal Name Type (Only for USA) • PY: Postal Place Name that is Acceptable as a Last Line Name of an Address • PN: Postal Place Name that is Not Acceptable as a Last Line Name of an Address • LL: Last Line Name or Preferred Postal Place Name	2	C	-
NAME	Postal District Name	70	C	-
NAMELC	Name Language Code	3	C	-

# Other Named Areas

**Table 92: OA Other Named Areas, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 3134: Census District</li> <li>• 9341: Census Block</li> <li>• 9342: Census Urbanized Area</li> <li>• 9343: Census Tract</li> <li>• 9344: Census Block Group</li> <li>• 9200: Index Area</li> <li>• 9202: Urban Agglomeration</li> <li>• 9203: Natives Reservation</li> <li>• 9204: MSA</li> </ul>	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
CODE	Area Code	30	C	-
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-
URBANAREA	Census Area Type <ul style="list-style-type: none"> <li>• 0: Not Applicable (default)</li> <li>• 1: Urban</li> <li>• 2: Rural</li> </ul>	1	N	-
INDORDER	Index Order (Only Relevant for Index Areas) <ul style="list-style-type: none"> <li>• 0: Not Applicable</li> <li>• 1..10: Order 1..10</li> </ul>	2	N	0

For each type a different OA layer is created being:

- 1 OA01 for
  - Europe : Census District
  - North America : Census Tract
- 2 OA02 for Census Block Groups
- 3 OA03 for Census Blocks
- 4 OA04 for Census Urbanized Area (UAs)
- 5 OA05 for Core Based Statistical Areas (CBSAs)
- 6 OA06 for Index Areas
- 7 OA07 for Urban Aggomeration
- 8 OA08 for Natives Reservation
- 9 OA09 (still empty)

**NOTE:** The relationship *Place within Place* is also relevant for the *Index Areas*. The table containing is relationship is decribed in the section *Administrative Places* . See Table 87 "PP Place Within Place Relation" on page 94

# Structures

Table Name and Code	Table #	Page
AS Area Structures, Geometry with Basic Attributes	93	99
PS Point Structures, Geometry with Basic Attributes	94	100
LS Line Structures, Geometry with Basic Attributes	95	100
SE Structure Transportation Elements Relation	96	101

Table 93: AS Area Structures, Geometry with Basic Attributes

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"> <li>• 7500: Structure (Area)</li> </ul>	4	N	0
FEATAREA	Area Surface Measure (square meters)	15	N	0
FEATPERIM	Perimeter (meters)	15	N	0
STRUCTTYP	Structure Type <ul style="list-style-type: none"> <li>• 1: Bridge</li> <li>• 3: Aqueduct</li> <li>• 4: Tunnel</li> </ul>	1	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 94: PS Point Structures, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 7500: Structure (Area)</li></ul>	4	N	0
STRUCTTYP (BT)	Structure Type <ul style="list-style-type: none"><li>• 1: Bridge</li><li>• 3: Aqueduct</li><li>• 4: Tunnel</li></ul>	1	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 95: LS Line Structures, Geometry with Basic Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 7500: Structure (Area)</li></ul>	4	N	0
METERS	Length (meters)	15	N	1
STRUCTTYP	Structure Type <ul style="list-style-type: none"><li>• 1: Bridge</li><li>• 3: Aqueduct</li><li>• 4: Tunnel</li></ul>	1	N	0
NAME	Official Name	70	C	-
NAMELC	Official Name Language Code	3	C	-

**Table 96: SE Structure Transportation Elements Relation**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Structure Identification	15	N	0
RELNR	Relation Number	5	N	0
SEQNR	Sequential Number	5	N	0
FEATID	Feature Identification	15	N	0
FEATTYP	Feature Type <ul style="list-style-type: none"><li>• 4120: Road Junction (T_JNCT / F_JNCT)</li><li>• 4220: Rail Junction (T_JNCT / F_JNCT)</li><li>• 4110: Road Element</li><li>• 4130: Ferry Connection Element</li><li>• 4165: Address Area Boundary Element</li><li>• 4210: Railway Element</li><li>• 4310: Water Body Line</li><li>• 9315: Water Center Line</li></ul>	4	N	0
ELEV	Level of the Feature <ul style="list-style-type: none"><li>• 1: Above</li><li>• 2: Below</li></ul>	1	N	0

# Extra Attribute Tables

Table Name	Table #	Page
NM Names	97	102
EA Extended Attributes	98	103

**Table 97: NM Names**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type	4	N	0
NAMETYP	Name Type <ul style="list-style-type: none"><li>• ON: Official Name</li><li>• AN: Alternate Name</li><li>• BN: Brand Name</li><li>• 8Y: Company Name</li></ul>	2	C	-
NAME	Name	70	C	-
NAMELC	Name Language Code	3	C	-

All named features contain one name in their own feature table. Additional names are listed in the name attribute tables (NM) above. The filenames for the extra name files are composed of the unit geometry table + NM, (e.g., PINM.DBF is the name file for POIs). Also all attributes with alfanumeric values that are not defined in the feature tables can be found here. The description of the attribute types can be found in the appendices.

Units that have several geometry tables have the following file names:

- Land Use and Land Cover: LXNM.dbf
- Water Lines and Areas: WXNM.dbf
- Structures (Points, Lines, Areas): SXNM.dbf

**Table 98: EA Extended Attributes**

Abbr.	Full Name and Attribute Values	W	T	D
ID	Feature Identification	15	N	0
FEATTYP	Feature Type	4	N	0
ATTRTYP	Attribute Type • MultiNet GDF Attribute Type Code	2	C	-
ATTRVALUE	Attribute Value • MultiNet GDF Attribute Value	70	C	-

Additional attributes containing numeric values are listed in the extra attribute tables (EA) above. The filenames for the extra name files are composed of the unit geometry table + EA, (e.g., NWEA.DBF is the extra attribute file for the Network table).

Units that have several geometry tables have the following file names:

- Land Use and Land Cover: LXEA.dbf
- Water Lines and Areas: WXA.DBF

Structures (Points, Lines, Areas): SXEA.dbf

*Major Road Feature* (9M) is to be found in the Extended Attribute Table.

Values:

- 1 Major Road Feature
- 2 Major Road Stub

# Conversion Records

Table Name	Table #	Page
CN Conversion Records	99	104

The Conversion Records table is delivered to enable partition crossing linking of features. It contains the Id of a feature in the current partition together with the Id of the same feature in the neighbouring partition. If the Id in the neighbouring partition is exactly the same then no conversion record is present. The table is only populated in case of the Dataset Product Type and not for the small partition or Admin version.

**Table 99: CN Conversion Records**

Abbr.	Full Name and Attribute Values	W	T	D
ID	From Feature Identification	15	N	0
FEATTYP	From Feature Type	4	N	0
TABEXT	From Shapefile Table Extension  <b>EXAMPLE:</b> NW, NL, WL, ...	4	C	-
TOID	To Feature Identification	15	N	0

**NOTE:** Data Set Crossing Conversion Records only refer to the main features (tables):

1. NW (Also works for: NWEA, GC, IH, TA, AB, SC, RN, TO, MP, SPTC, TG, 2R, IG, RS, FE, PI, SM, SE, PC, TT, RD, SR)
3. IS (2R, CF)
4. CF (IS)
5. RR (SE)
6. PI (PINM, PIEA, PR, PE, VR)
7. SM (SMNM, SMEA, PR, PE)
8. WL (SE)
9. OA06, OA07 (OAEA, OANM, TA, PP, SA, BA)

# Appendix 1: GDF Features, Attributes and Relationships

<b>Table</b>	<b>Number</b>	<b>Page</b>
Feature Name and Code, Sorted by Name	Table 100	105
Feature Code and Name, Sorted by Code	Table 101	109
Attribute Name and Code, Sorted by Name	Table 102	112
Attribute Code and Name, Sorted by Code	Table 103	115
Attribute Code, Name, Value, and Description	Table 104	118
Relationship Code and Name	Table 105	132
Relationship Name and Code	Table 106	133

**Table 100: Feature Name and Code, Sorted by Name**

Feature Name	Code	Feature Name	Code
ATM	9354	Abbey	9901
Abbey Ground	9731	Address Area	4160
Address Area Boundary Element	4165	Administrative Boundary Element	1199
Administrative Boundary Junction	1198	Administrative Place C	1167
Airline Access	7356	Airport	7383
Airport Ground	9732	Amusement Park	9902
Amusement Park Ground	9733	Arts Centre	9903
Arts Centre Ground	9734	Bank	7328
Beach	9357	Beach/Dune/Sand Area	9710
Bovag Garage	9368	Breakdown Service	9645
Brunnel	7500	Building (Area)	7110
Building Footprint (Point)	9904	Built-up Area	3110
Bus Station	7384	Business Facility	7378
Café/Pub	9376	Camping Ground	7360
Camping Site Ground	9735	Car Dealer	9910
Car Racetrack	9931	Car Racetrack Ground	9736
Car Repair Facility	7310	Car Shipping Terminal	7355
Caravan Site	7361	Cargo Centre	7351

**Table 100: Feature Name and Code, Sorted by Name (Continued)**

Feature Name	Code	Feature Name	Code
Cash Dispenser	7397	Casino	7341
Castle	9905	Castle (not to visit) Ground	9737
Castle (to visit) Ground	9738	Cemetery	9390
Cemetery Ground	9788	Census Block	9341
Census Block Group	9344	Census District	3134
Census Tract	9343	Census Urbanised Area	9342
Centre Point of Feature	8000	Church	9906
Church Ground	9739	Cinema	7342
City Centre	7379	City Hall	7323
City Hall Ground	9740	Coach and Lorry Parking	7362
College / University	7377	Commercial Building	9382
Community Centre	7363	Company	9352
Company Ground	9353	Concert Hall	9367
Condominium	9381	Convention Centre	9377
Core Based Statistical Area	9204	Country	1111
Courthouse	9363	Courthouse Ground	9741
Cultural Centre	7319	Customs	7364
Dentist	9374	Departement Store	7327
Doctor	9373	Embassy	7365
Emergency Call Station	7390	Emergency Medical Service	7391
Enclosed Traffic Area	4135	Entertainment	9900
Entry Point	9920	Exhibition Centre	7385
Factory Ground Philips	9908	Ferry Connection	4130
Ferry Edge	9330	Ferry Terminal	7352
Fire Brigade	7392	Fire Station Ground	9742
First Aid Post	7325	Forest Area	9387
Fortress	9909	Fortress Ground	9743
Freeport	7394	Freeport	9730
Frontier Crossing	7366	General POI	9600
Golf Course	9911	Golf Course Ground	9744
Government Building Ground	9745	Government Office	7367
Hippodrome	9356	Hippodrome Ground	9746
Holiday Area	9912	Holiday Area Ground	9747
Hospital Ground	9748	Hospital/Polyclinic	7321
Hotel or Motel	7314	Hotel or Motel Ground	9749

**Table 100: Feature Name and Code, Sorted by Name (Continued)**

Feature Name	Code	Feature Name	Code
Ice Skating Rink	9360	Important Tourist Attraction	7376
Index Area	9200	Industrial Area	9715
Industrial Building	9383	Industrial Harbour Area	9720
Institution	9780	Intersection	4145
Island	7180	Junction	4120
Kindergarten	7386	Leisure Centre	9378
Library	9913	Library Ground	9750
Light House Ground	9751	Lighthouse	9914
Military Cemetery	9915	Military Installation	9388
Military Territory	9789	Monastery	9916
Monastery Ground	9753	Monument	9917
Monument Ground	9759	Moor/Heathland	9725
Motoring Organization Office	7368	Mountain Pass	9935
Mountain Peak	9364	Museum	7317
Museum Ground	9754	Music Centre	9372
Natives Reservation	9203	Natives Reservation	9389
Natural Reserve	9918	Nature Reserve Ground	9755
Nightlife	9379	Open Parking Area	7369
Opera	9365	Order 1 Area	1112
Order 2 Area	1113	Order 3 Area	1114
Order 4 Area	1115	Order 5 Area	1116
Order 6 Area	1117	Order 7 Area	1118
Order 8 Area	1119	Order 9 Area	1120
Other Landuse	9781	Park and Recreation Area	9362
Park/Garden	7170	Parking Area Ground	9756
Parking Garage	7313	Petrol Station	7311
Petrol Station Ground	9757	Pharmacy	7326
Place of Interest Building	9758	Place of Worship	7339
Police Office Ground	9760	Police Station	7322
Post Office	7324	Post Office Ground	9777
Postal District	3136	Prison	9919
Prison Ground	9761	Public Phone	7330
Public Transport Stop	9942	Public Transport Stop	9942
Public Transport Stop	9942	Railway Edge	9320
Railway Element	4210	Railway Element Junction	4220

**Table 100: Feature Name and Code, Sorted by Name (Continued)**

Feature Name	Code	Feature Name	Code
Railway Node	9325	Railway Station	7380
Railway Station Ground	9762	Recreation Facility	7370
Recreational Area Ground	9763	Rent-a-Car Facility	7312
Rent-a-Car Parking	9930	Rest Area	7395
Rest Area Ground	9765	Restaurant	7315
Restaurant Area	9359	Restaurant Ground	9764
Road	4140	Road Edge	9310
Road Element	4110	Road Node	9305
Road Side Diner	7371	Rocks	9921
Rocks Ground	9766	Runway	9776
Scenic / Panoramic View	7337	School	7372
Shop	9361	Shop	9361
Shop	9361	Shopping Center Ground	9790
Shopping Centre	7373	Skating Rink	9370
Ski Lift Station	7334	Sports Centre	7320
Sports Hall	9922	Sports Hall Ground	9767
Stadium	7374	Stadium Ground	9768
State Police Office	9923	State Police Office Ground	9769
Suburbs	9201	Swimming Pool	7338
TMC Location	9020	TMC Path	9021
Tennis Court	9369	Theatre	7318
Theatre Ground	9770	Toll	7375
Tourist Information Office	7316	Traffic Sign	7220
Transport Company	7340	Travel Agency	7329
University or College Ground	9771	Urban Agglomeration	9202
Vehicle Equipment Provider	9646	Veterinarian	9375
View Ground	9772	Walking Area	9924
Walking Terrain Ground	9773	Warehouse	7331
Water Centre Line	9315	Water Centre Line Junction	9316
Water Element	4310	Water Mill	9925
Water Mill Ground	9774	Water Sport	9371
Windmill	9926	Windmill Ground	9778
Winery	7349	Woodland	7120
Yacht Basin	9380	Zoo	7336
Zoo	9927	Zoo Ground	9775

Table 101: Feature Code and Name, Sorted by Code

Code	Feature Name	Code	Feature Name
1111	Country	1112	Order 1 Area
1113	Order 2 Area	1114	Order 3 Area
1115	Order 4 Area	1116	Order 5 Area
1117	Order 6 Area	1118	Order 7 Area
1119	Order 8 Area	1120	Order 9 Area
1167	Administrative Place C	1198	Administrative Boundary Junction
1199	Administrative Boundary Element	3110	Built-up Area
3134	Census District	3136	Postal District
4110	Road Element	4120	Junction
4130	Ferry Connection	4135	Enclosed Traffic Area
4140	Road	4145	Intersection
4160	Address Area	4165	Address Area Boundary Element
4210	Railway Element	4220	Railway Element Junction
4310	Water Element	7110	Building (Area)
7120	Woodland	7170	Park/Garden
7180	Island	7220	Traffic Sign
7310	Car Repair Facility	7311	Petrol Station
7312	Rent-a-Car Facility	7313	Parking Garage
7314	Hotel or Motel	7315	Restaurant
7316	Tourist Information Office	7317	Museum
7318	Theatre	7319	Cultural Centre
7320	Sports Centre	7321	Hospital/Polyclinic
7322	Police Station	7323	City Hall
7324	Post Office	7325	First Aid Post
7326	Pharmacy	7327	Departement Store
7328	Bank	7329	Travel Agency
7330	Public Phone	7331	Warehouse
7334	Ski Lift Station	7336	Zoo
7337	Scenic / Panoramic View	7338	Swimming Pool
7339	Place of Worship	7340	Transport Company
7341	Casino	7342	Cinema
7349	Winery	7351	Cargo Centre
7352	Ferry Terminal	7355	Car Shipping Terminal
7356	Airline Access	7360	Camping Ground

**Table 101: Feature Code and Name, Sorted by Code (Continued)**

Code	Feature Name	Code	Feature Name
7361	Caravan Site	7362	Coach and Lorry Parking
7363	Community Centre	7364	Customs
7365	Embassy	7366	Frontier Crossing
7367	Government Office	7368	Motoring Organization Office
7369	Open Parking Area	7370	Recreation Facility
7371	Road Side Diner	7372	School
7373	Shopping Centre	7374	Stadium
7375	Toll	7376	Important Tourist Attraction
7377	College / University	7378	Business Facility
7379	City Centre	7380	Railway Station
7383	Airport	7384	Bus Station
7385	Exhibition Centre	7386	Kindergarten
7390	Emergency Call Station	7391	Emergency Medical Service
7392	Fire Brigade	7394	Freeport
7395	Rest Area	7397	Cash Dispenser
7500	Brunnel	8000	Centre Point of Feature
9020	TMC Location	9021	TMC Path
9200	Index Area	9201	Suburbs
9202	Urban Agglomeration	9203	Natives Reservation
9204	Core Based Statistical Area	9305	Road Node
9310	Road Edge	9315	Water Centre Line
9316	Water Centre Line Junction	9320	Railway Edge
9325	Railway Node	9330	Ferry Edge
9341	Census Block	9342	Census Urbanised Area
9343	Census Tract	9344	Census Block Group
9352	Company	9353	Company Ground
9354	ATM	9356	Hippodrome
9357	Beach	9359	Restaurant Area
9360	Ice Skating Rink	9361	Shop
9361	Shop	9361	Shop
9362	Park and Recreation Area	9363	Courthouse
9364	Mountain Peak	9365	Opera
9367	Concert Hall	9368	Bovag Garage
9369	Tennis Court	9370	Skating Rink
9371	Water Sport	9372	Music Centre

**Table 101: Feature Code and Name, Sorted by Code (Continued)**

Code	Feature Name	Code	Feature Name
9373	Doctor	9374	Dentist
9375	Veterinarian	9376	Café/Pub
9377	Convention Centre	9378	Leisure Centre
9379	Nightlife	9380	Yacht Basin
9381	Condominium	9382	Commercial Building
9383	Industrial Building	9387	Forest Area
9388	Military Installation	9389	Natives Reservation
9390	Cemetery	9600	General POI
9645	Breakdown Service	9646	Vehicle Equipment Provider
9710	Beach/Dune/Sand Area	9715	Industrial Area
9720	Industrial Harbour Area	9725	Moor/Heathland
9730	Freeport	9731	Abbey Ground
9732	Airport Ground	9733	Amusement Park Ground
9734	Arts Centre Ground	9735	Camping Site Ground
9736	Car Racetrack Ground	9737	Castle (not to visit) Ground
9738	Castle (to visit) Ground	9739	Church Ground
9740	City Hall Ground	9741	Courthouse Ground
9742	Fire Station Ground	9743	Fortress Ground
9744	Golf Course Ground	9745	Government Building Ground
9746	Hippodrome Ground	9747	Holiday Area Ground
9748	Hospital Ground	9749	Hotel or Motel Ground
9750	Library Ground	9751	Light House Ground
9753	Monastery Ground	9754	Museum Ground
9755	Nature Reserve Ground	9756	Parking Area Ground
9757	Petrol Station Ground	9758	Place of Interest Building
9759	Monument Ground	9760	Police Office Ground
9761	Prison Ground	9762	Railway Station Ground
9763	Recreational Area Ground	9764	Restaurant Ground
9765	Rest Area Ground	9766	Rocks Ground
9767	Sports Hall Ground	9768	Stadium Ground
9769	State Police Office Ground	9770	Theatre Ground
9771	University or College Ground	9772	View Ground
9773	Walking Terrain Ground	9774	Water Mill Ground
9775	Zoo Ground	9776	Runway
9777	Post Office Ground	9778	Windmill Ground

**Table 101: Feature Code and Name, Sorted by Code (Continued)**

Code	Feature Name	Code	Feature Name
9780	Institution	9781	Other Landuse
9788	Cemetery Ground	9789	Military Territory
9790	Shopping Center Ground	9900	Entertainment
9901	Abbey	9902	Amusement Park
9903	Arts Centre	9904	Building Footprint (Point)
9905	Castle	9906	Church
9908	Factory Ground Philips	9909	Fortress
9910	Car Dealer	9911	Golf Course
9912	Holiday Area	9913	Library
9914	Lighthouse	9915	Military Cemetery
9916	Monastery	9917	Monument
9918	Natural Reserve	9919	Prison
9920	Entry Point	9921	Rocks
9922	Sports Hall	9923	State Police Office
9924	Walking Area	9925	Water Mill
9926	Windmill	9927	Zoo
9930	Rent-a-Car Parking	9931	Car Racetrack
9935	Mountain Pass	9942	Public Transport Stop

**Table 102: Attribute Name and Code, Sorted by Name**

Attribute Name	Code	Attribute Name	Code
24h Service	7H	Acronym	1Q
Address Point ID	0B	Administrative Boundary Type	BX
Administrative Structure Identifier	H1	Airport Code	AI
Alternate Name	AN	Alternative Name for Tourist Road	7N
Alternative Street Name Type	7B	Ambiguous Information	4M
Back Road	6S	Bifurcation Type	4B
Blocked Passage	BP	Brand Name	BN
Brunnel Type	BT	Building Class	BC
Car Dealer Type	9C	Car Pool Facility	80
Carriageway Designator	6M	Census District Code	6N
City Centre Administrative Class	9E	City Centre Display Class	6B
Classification	1H	Company Ground Type	8G
Company Name	8Y	Connected Lanes	7C

**Table 102: Attribute Name and Code, Sorted by Name (Continued)**

Attribute Name	Code	Attribute Name	Code
Connection Information	6K	Construction Status	6Z
Departure/Arrival	AD	Destination Set Number	4J
Destination Set Part Number	4K	Direction of Traffic Flow	DF
Direction of Traffic Flow for Lane	7F	Domestic/International	NI
E-Mail Address	8M	Entry Point Type	9N
Exit Name	4G	Exit Number	4E
Exit/Entrance Lane	7L	Facilities	6F
Feature In Named Area Code	9Z	Ferry Type	FT
First House Number Left	LS	First House Number Right	RS
Food Type	9F	Forest Type	5F
Form of Way	FW	Freeway	FY
Freeway Intersection Type	4F	From Direction	6C
Functional Road Class	FC	Geo Coding Accuracy Level	6A
Government Type	9G	Height of Mountain Pass	HP
Height of Peak	6P	House Number	9H
House Number Structure	HS	House Number Structure Left	4L
House Number Structure Right	4R	ISO Country Code	IC
Importance	IM	Index Order	9X
Intermediate House Number Left	LI	Intermediate House Number Right	RI
Internet Address	8L	Interpolation Flag	6I
Intersection Type	IT	Junction Type	JT
Lane Dependant Validity	LD	Lane Direction Category	7E
Lane Divider Type	7D	Last House Number Left	LE
Last House Number Right	RE	Main Postal Code	5M
Major Road Feature	9M	MasterPathID	4W
MasterPathSequence	4X	Military Service Branch	1G
Name Component Length	NC	Name Component Offset	NO
Name Component Type	NT	Named Area Feature Code	9Y
Net 1 Class	8B	Net 2 Class	8C
Net B Class	9B	Network Type	8N
Number of Lanes	NL	Number of Places	7P
Official Code	OC	Official Language	5L
Official Name	ON	Opening Period	OP
Other Destination	4I	Park Classification	1J
Park Importance	1I	Park Type	PT

**Table 102: Attribute Name and Code, Sorted by Name (Continued)**

Attribute Name	Code	Attribute Name	Code
Park and Ride Facility	9P	Parking Garage Construction Type	8J
Parking Size	8K	Pictogram	4H
Place Name	9D	Place Within Place Classification	PL
Place of Worship Type	6H	Plural Junction	2P
Population	PO	Population Class	PC
Positional Accuracy	AP	Post Office Type	90
Postal Code	PS	Processing Status	2S
Product Category	1T	Prohibited Manoeuvre Type	8I
Public Transport Stop Location Type	5P	Publicly Accessible	9J
Quality Mark	7Q	RDS/TMC (level-1 attribute stored as: ABCCDEEEE)	RD
Railway Element Class	3A	Railway Station Type	RY
Ramp	6E	Recreation Facility	7R
Relative Position	8R	Removable Blockage	RB
Rest Area Facilities	8U	Road Conditions	DS
Road Geometry Completeness	2C	Route Directional	7G
Route Number	RN	Route Number Priority	1K
Route Number Type	6W	Sand Area Type	7S
Shop Type	SH	Side of Line	8D
Slip Road Type	SL	Special Charge	1M
Special Restrictions	SR	Speed Restriction	SP
Speed Restriction Type	10	Standard Name for Tourist Road	7M
Street Code	40	Street Identifier	7I
Street Name	6T	Street Name Type	7A
Stubble	2T	Sub Postal Code	5S
Summer Time	SU	TMC Location Reference	4T
TMC Location Table Version Number	6G	TMC Path CC LTN	4V
TMC Path ID	1L	TMC Path Information	4U
Telefax Number	TX	Telephone Number	TL
Time Zone	TZ	To Direction	6D
Toll Information	TR	Tourist Attraction Type	6J
Tourist Municipality	2M	Tourist Road Type	70
Traffic Sign Class	TS	Traffic Sign Position	30
Truck Stop	8Q	Unit of Measurement	1F
Urban Area	6L	Validity Direction	7V

**Table 102: Attribute Name and Code, Sorted by Name (Continued)**

Attribute Name	Code	Attribute Name	Code
Validity Period	VP	Vehicle Restriction	6Q
Vehicle Type	VT	Verification Flag for Speed Restriction	1N
Water Display Class	WD	Water Element Type	WT
Z-level information	8Z		

**Table 103: Attribute Code and Name, Sorted by Code**

Code	Attribute Name	Code	Attribute Name
0B	Address Point ID	1F	Unit of Measurement
1G	Military Service Branch	1H	Classification
1I	Park Importance	1J	Park Classification
1K	Route Number Priority	1L	TMC Path ID
1M	Special Charge	1N	Verification Flag for Speed Restriction
10	Speed Restriction Type	1Q	Acronym
1T	Product Category	2C	Road Geometry Completeness
2M	Tourist Municipality	2P	Plural Junction
2S	Processing Status	2T	Stubble
3A	Railway Element Class	30	Traffic Sign Position
4B	Bifurcation Type	4E	Exit Number
4F	Freeway Intersection Type	4G	Exit Name
4H	Pictogram	4I	Other Destination
4J	Destination Set Number	4K	Destination Set Part Number
4L	House Number Structure Left	4M	Ambiguous Information
40	Street Code	4R	House Number Structure Right
4T	TMC Location Reference	4U	TMC Path Information
4V	TMC Path CC LTN	4W	MasterPathID
4X	MasterPathSequence	5F	Forest Type
5L	Official Language	5M	Main Postal Code
5P	Public Transport Stop Location Type	5S	Sub Postal Code
6A	Geo Coding Accuracy Level	6B	City Centre Display Class
6C	From Direction	6D	To Direction
6E	Ramp	6F	Facilities
6G	TMC Location Table Version Number	6H	Place of Worship Type
6I	Interpolation Flag	6J	Tourist Attraction Type
6K	Connection Information	6L	Urban Area

**Table 103: Attribute Code and Name, Sorted by Code (Continued)**

Code	Attribute Name	Code	Attribute Name
6M	Carriageway Designator	6N	Census District Code
6P	Height of Peak	6Q	Vehicle Restriction
6S	Back Road	6T	Street Name
6W	Route Number Type	6Z	Construction Status
7A	Street Name Type	7B	Alternative Street Name Type
7C	Connected Lanes	7D	Lane Divider Type
7E	Lane Direction Category	7F	Direction of Traffic Flow for Lane
7G	Route Directional	7H	24h Service
7I	Street Identifier	7L	Exit/Entrance Lane
7M	Standard Name for Tourist Road	7N	Alternative Name for Tourist Road
7O	Tourist Road Type	7P	Number of Places
7Q	Quality Mark	7R	Recreation Facility
7S	Sand Area Type	7V	Validity Direction
8B	Net 1 Class	8C	Net 2 Class
8D	Side of Line	8G	Company Ground Type
8I	Prohibited Manoeuvre Type	8J	Parking Garage Construction Type
8K	Parking Size	8L	Internet Address
8M	E-Mail Address	8N	Network Type
8O	Car Pool Facility	8Q	Truck Stop
8R	Relative Position	8U	Rest Area Facilities
8Y	Company Name	8Z	Z-level information
9B	Net B Class	9C	Car Dealer Type
9D	Place Name	9E	City Centre Administrative Class
9F	Food Type	9G	Government Type
9H	House Number	9J	Publicly Accessible
9M	Major Road Feature	9N	Entry Point Type
9O	Post Office Type	9P	Park and Ride Facility
9X	Index Order	9Y	Named Area Feature Code
9Z	Feature In Named Area Code	AD	Departure/Arrival
A1	Airport Code	AN	Alternate Name
AP	Positional Accuracy	BC	Building Class
BN	Brand Name	BP	Blocked Passage
BT	Brunnel Type	BX	Administrative Boundary Type
DF	Direction of Traffic Flow	DS	Road Conditions
FC	Functional Road Class	FT	Ferry Type

**Table 103: Attribute Code and Name, Sorted by Code (Continued)**

Code	Attribute Name	Code	Attribute Name
FW	Form of Way	FY	Freeway
HI	Administrative Structure Identifier	HP	Height of Mountain Pass
HS	House Number Structure	IC	ISO Country Code
IM	Importance	IT	Intersection Type
JT	Junction Type	LD	Lane Dependant Validity
LE	Last House Number Left	LI	Intermediate House Number Left
LS	First House Number Left	NC	Name Component Length
NI	Domestic/International	NL	Number of Lanes
NO	Name Component Offset	NT	Name Component Type
OC	Official Code	ON	Official Name
OP	Opening Period	PC	Population Class
PL	Place Within Place Classification	PO	Population
PS	Postal Code	PT	Park Type
RB	Removable Blockage	RD	RDS/TMC (level-1 attribute stored as: ABCCDEEEE)
RE	Last House Number Right	RI	Intermediate House Number Right
RN	Route Number	RS	First House Number Right
RY	Railway Station Type	SH	Shop Type
SL	Slip Road Type	SP	Speed Restriction
SR	Special Restrictions	SU	Summer Time
TL	Telephone Number	TR	Toll Information
TS	Traffic Sign Class	TX	Telefax Number
TZ	Time Zone	VP	Validity Period
VT	Vehicle Type	WD	Water Display Class
WT	Water Element Type		

**Table 104: Attribute Code, Name, Value, and Description**

Code	Attribute Name	Value	Value Description
7H	24h Service	1	Automated Payment Available
BX	Administrative Boundary Type	20	Country
		21	Order-1 Administrative Area
		22	Order-2 Administrative Area
		23	Order-3 Administrative Area
		24	Order-4 Administrative Area
		25	Order-5 Administrative Area
		26	Order-6 Administrative Area
		27	Order-7 Administrative Area
		28	Order-8 Administrative Area
		29	Order-9 Administrative Area
		65	Administrative Place A
		66	Administrative Place B
		67	Administrative Place C
		68	Administrative Place D
		69	Administrative Place E
		70	Administrative Place F
		71	Administrative Place G
		72	Administrative Place H
		73	Administrative Place I
		74	Administrative Place J
		75	Administrative Place K
		76	Administrative Place L
		77	Administrative Place M
		78	Administrative Place N
		79	Administrative Place O
		80	Administrative Place P
		81	Administrative Place Q
		82	Administrative Place R
		83	Administrative Place S
		84	Administrative Place T
		85	Administrative Place U
		86	Administrative Place V
		87	Administrative Place W
		88	Administrative Place X
		89	Administrative Place Y
		90	Administrative Place Z
7B	Alternative Street Name Type	1	Street Name
		2	Postal Name
		3	Vanity Name
4M	Ambiguous Information	0	Not Ambiguous (default value)
		1	Ambiguous

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
6S	Back Road	1	Back Roads
		2	Unaddressable Path
		3	Unclassified Back Road
		4	Primary Sector Service Road
		5	Destination Road
4B	Bifurcation Type	1	Multi-lane fork
		2	Simple Fork
		9	Exit Bifurcation
BP	Blocked Passage	1	Physically Blocked at Start
		2	Physically Blocked at End
BT	Brunnel Type	1	Bridge/underpass
		3	Aqueduct/underpass
		4	Overpass/Tunnel
BC	Building Class	Airport	Airport Terminal
		Parking	Parking Garage
80	Car Pool Facility	1	Car Pool Facility Available
6M	Carriageway Designator	1	Car Pool
		2	Express
		3	Local
		0	Class 0: Capital of Country
9E	City Centre Administrative Class	1	Class 1: Capital of the order 1 Area
		10	Class 10: Others
		12	Class 12
		2	Class 2: Capital of the Order 2 Area
		3	Class 3: Capital of the Order 3 Area
		4	Class 4: Capital of the Order 4 Area
		5	Class 5: Capital of the Order 5 Area
		6	Class 6: Capital of the Order 6 Area
		7	Class 7: Capital of the Order 7 Area
		8	Class 8: Capital of the Order 8 Area
6B	City Centre Display Class	9	Class 9: Capital of the Order 9 Area
		1	Class 1
		10	Class 10
		11	Class 11
		12	Class 12
		2	Class 2
		3	Class 3
		4	Class 4
		5	Class 5
		6	Class 6
		7	Class 7
		8	Class 8
		9	Class 9

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
1H	Classification	1	Class 1
		2	Class 2
		3	Class 3
		4	Class 4
8G	Company Ground Type	1	Philips
		10	Skoda
		11	Rover
		12	Opel
		13	Fiat
		14	Blaupunkt
		15	VDO
		2	BMW
		3	Volkswagen
		4	Daimler-Chrysler
		5	Audi
		6	Ford
		7	Porsche
		8	SEAT
		9	Siemens
6K	Connection Information	0	Undefined
		1	Connection (Branch)
		2	Destination (Towards)
		3	Exit
6Z	Construction Status	1	Under Construction in Both Directions
		2	Under Construction in Line Direction
		3	Under Construction opposite of Line
AD	Departure/Arrival	1	Departure
		2	Arrival
		3	Departure Arrival
DF	Direction of Traffic Flow	1	Open in Both Directions
		2	Closed in Positive Direction
		3	Closed in Negative Direction
		4	Closed in Both Directions
7F	Direction of Traffic Flow for Lane	1	Open in Both Directions
		2	Closed in Positive Direction
		3	Closed in Negative Direction
		4	Closed in Both Directions
NI	Domestic/International	1	Domestic
		2	International
		3	Domestic and International
9N	Entry Point Type	1	Main
		2	Minor

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
7L	Exit/Entrance Lane	0	No Exit/Entrance Lane
		1	Exit/Entrance Lane
6F	Facilities	1	LPG Available
		2	Diesel
		3	Petrol
		4	CNG
FT	Ferry Type	1	Ferry Connection
		2	Rail Connection
9F	Food Type	0	Others
		1	French
		10	Swiss
		100	Vegetarian
		101	Fast Food
		102	Grill
		103	Sea Food
		104	Sandwich
		105	Steak House
		106	Bistro
		107	Barbecue
		11	Mexican
		12	Thai
		13	Dutch
		14	Vietnamese
		15	American
		16	Austrian
		17	British
		18	Caribbean
		19	African
		2	Belgian
		20	Hawaiian
		21	Indonesian
		22	Korean
		23	Filipino
		24	Surinamese
		25	Hungarian
		254	Local
		255	Unknown
		26	Jewish
		27	Polish
		28	Russian
		29	Turkish
		3	Chinese
		30	Middle Eastern

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
9F	Food Type	31	Spanish
		32	Portuguese
		33	Maltese
		34	Californian
		35	Latin American
		36	Canadian
		4	German
		5	Greek
		6	Italian
		7	Indian
5F	Forest Type	8	Japanese
		9	Oriental
		1	City Forest
		2	Regional Forest
		3	County Forest
FW	Form of Way	4	State / Provincial Forest
		5	National Forest
		1	Part of a Motorway
		10	Part of a Sliproad
		11	Part of a Service Road
		12	Entrance/Exit to/from a car park
		14	Part of a Pedestrian Zone
		15	Part of a Walkway
		17	Special Traffic Figure
		2	Part of Multi Carriageway which is not
		20	Road for Authorities
		3	Part of a Single Carriageway
		4	Part of a Roundabout
		6	Part of an ETA: parking place
FY	Freeway	7	Part of an ETA: parking building
		8	Part of an ETA: unstructured traffic
4F	Freeway Intersection Type	1	Motorway Exit/Access
		2	Motorway Interchange
		3	Others

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
FC	Functional Road Class	0	Main Road: Motorways
		1	Roads not belonging to 'Main Road'
		2	Other Major Roads
		3	Secondary Roads
		4	Local Connecting Roads
		5	Local Roads of High Importance
		6	Local Roads
		7	Local Roads of Minor Importance
		8	Others
6A	Geo Coding Accuracy Level	1	L0.1
		11	L1
		12	L2
		13	L3
		14	L4
		15	L5
		16	L6
		17	L7
		18	L8
		2	L0.2
		3	L0.3
		99	No Geo Coding Accuracy Level
9G	Government Type	0	National
		1	Order 1
		2	Order 2
		3	Order 3
		4	Order 4
		5	Order 5
		6	Order 6
		7	Order 7
		8	Municipality
		99	Supra National
HS	House Number Structure	1	No House Numbers at All
		2	Regular with Odd & Even Numbers at
		3	Regular with Odd & Even Numbers at
		4	Irregular House Number Structure
4L	House Number Structure Left	1	No House Numbers at All
		2	Even
		3	Odd
		4	Mixed
		5	Irregular House Number Structure

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
4R	House Number Structure Right	1	No House Numbers at All
		2	Even
		3	Odd
		4	Mixed
		5	Irregular House Number Structure
IM	Importance	1	National
		2	Local
9X	Index Order	1	Order 1
		10	Order 10
		2	Order 2
		3	Order 3
		4	Order 4
		5	Order 5
		6	Order 6
		7	Order 7
		8	Order 8
		9	Order 9
6I	Interpolation Flag	1	Interpolated House Number
IT	Intersection Type	0	No Type
		1	Freeway Intersection
		2	Complex Street Intersection
JT	Junction Type	2	Bifurcation
		3	Railway Crossing
		4	Country Border Crossing
		5	Ferry Operated by Train Crossing
		0	No Direction Indicated
7E	Lane Direction Category	1	Straight
		128	Slight Left
		16	U-turn
		2	Slight Right
		32	Sharp Left
		4	Right
		64	Left
		8	Sharp Right
		0	None
7D	Lane Divider Type	1	Interrupted Line with Long Lines
		2	Double Solid Line
		3	Single Solid Line
		4	Combination of Single Solid &
		5	Combination of an Interrupted and a
		6	Interrupted Line with Short Lines
9M	Major Road Feature	1	Major Road Feature
		2	Major Road Stubble

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
1G	Military Service Branch	1	Army (Ground Force)
		2	Navy
		3	Air Force
		4	Marine Corps
		5	Coast Guard
NT	Name Component Type	1	Pre-Directional
		2	Prefix
		3	Body
		4	Suffix
		5	Post-Directional
		6	Key
		7	Surname
		8	Article/Preposition
		9	Exit Number
8B	Net 1 Class	1	Class 1
		2	Class 2
		3	Class 3
		4	Class 4
8C	Net 2 Class	0	Class 0
		1	Class 1
		2	Class 2
		3	Class 3
		4	Class 4
		5	Class 5
		6	Class 6
9B	Net B Class	1	Class 1
		2	Class 2
		3	Class 3
		4	Class 4
		5	Class 5
		6	Class 6
8N	Network Type	1	Street Network
		2	Interconnecting Network
		3	Major Road Network
7P	Number of Places	0	Not defined
9P	Park and Ride Facility	0	Undefined
		1	Park and ride facility available

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
1J	Park Classification	1	Park
		10	Seashore
		11	Lakeshore
		12	River
		13	Parkway
		14	Wilerness Area
		2	Monument
		3	Preserve
		4	Historic Site
		5	Historical Park
		6	Memorial
		7	Battlefield
		8	Cemetery
		9	Recreation Area
1I	Park Importance	1	Major
		2	Medium
		3	Minor
PT	Park Type	1	City Park
		2	Regional Park
		3	County Park
		4	State / Province Park
		5	National Park
8J	Parking Garage Construction Type	0	Undefined
		1	Multi Storey
		2	Subterranean
8K	Parking Size	1	<50 parking places
		2	Between 50-100 Parking Places
		3	>100 parking places

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
4H	Pictogram	1	Airport
		10	Information Center
		11	Parking Facility
		12	Petrol Station
		13	Railway Station
		14	Rest Area
		15	Restaurant
		16	Toilet
		2	Bus Station
		3	Fair
		4	Ferry Connection
		5	First-aid Post
		6	Harbour
		7	Hospital
		8	Hotel / Motel
		9	Industrial Area
6H	Place of Worship Type	0	No Type
		1	Church
		2	Mosque
		3	Synagogue
		4	Others
PL	Place Within Place Classification	3	Address-Significant
2P	Plural Junction	1	Part of a Plural Junction
PC	Population Class	1	Class 1: >= 1.000.000
		2	Class 2: 500.000 - 999.999
		3	Class 3: 100.000 - 499.999
		4	Class 4: 50.000 - 99.999
		5	Class 5: 10.000 - 49.999
		6	Class 6: 0 - 9.999
AP	Positional Accuracy	0	Normal Accuracy Level
		1	High Inaccurate Level
		2	Low Inaccurate Level
2S	Processing Status	1	Fully attributed
		2	Basic Attributed
		9	Incompletely Attributed

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
1T	Product Category	0	Not defined (default value)
		1	Antiques
		10	Carpets
		11	Christmas articles
		12	Clothes (children)
		13	Clothes (men)
		14	Clothes (women)
		15	Computers & accessories
		16	Cosmetics
		17	Decoration
		18	Electrical appliances
		19	Flowers
		2	Arts
		20	Foam & plastics
		21	Food
		22	Furniture
		23	Gifts
		24	Glassware, ceramics & china
		25	Haberdashery
		26	Household
		27	Jewellery & watches
		28	Lights
		29	Motorcycles & accessories
		3	Audio/video/photo
		30	Needlework & craftwork
		31	Office supplies
		32	Shoes
		33	Sports & leisure
		34	Table cloth
		35	Textiles, wool & furs
		36	Tools
		37	Toys & children's articles
		38	Umbrellas
		39	Wellness
8I	Prohibited Manoeuvre Type	4	Bags & leather ware
		5	Beds, blankets, mattresses &
		6	Beverages
		7	Bicycles & accessories
		8	Boats
		9	Cars & automotive
8I	Prohibited Manoeuvre Type	0	Prohibited Manoeuvre
		1	Implicit Turn

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
5P	Public Transport Stop Location Type	1	Bus Stop
		2	Light Rail
		3	Taxi Rank
9J	Publicly Accessible	0	Not Publicly Accessible
		1	Publicly Accessible
7Q	Quality Mark	1	BOVAG
		2	PGA Certification
3A	Railway Element Class	1	Railway Line
		2	Tram Line
		3	Monorail Line
RY	Railway Station Type	11	International Railway Station
		12	National Railway Station
		13	(Sub) Urban
		3	Underground/Metro Station
6E	Ramp	1	Exit Ramp
		2	Entrance Ramp
7R	Recreation Facility	0	Not defined
RB	Removable Blockage	1	Accessible for Emergency Vehicles
		2	Keyed Access
		3	Guard Controlled
8U	Rest Area Facilities	1	Hotel or Motel
		2	Parking Facility
		3	Petrol Station
		4	Restaurant
		5	WC
		6	Kiosk
DS	Road Conditions	1	Paved
		2	Unpaved Road
		3	Road in Poor Condition
2C	Road Geometry Completeness	1	Fully represented road network
		2	Partly Represented Road Network
7G	Route Directional	1	Northbound
		2	Eastbound
		3	Southbound
		4	Westbound

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
6W	Route Number Type	1	Class 1
		10	Class 10
		11	Class 11
		2	Class 2
		3	Class 3
		4	Class 4
		5	Class 5
		6	Class 6
		7	Class 7
		8	Class 8
		9	Class 9
7S	Sand Area Type	1	Beach/Dune
		99	Others
SH	Shop Type	1	Drive-Through Bottle Shop
		2	Factory Outlet
		255	Unknown (default value)
8D	Side of Line	0	Both Sides
		1	Left side
		2	Right Side
		3	On Line
SL	Slip Road Type	1	Parallel Road
		18	Major / Minor Sliproad
		2	Slip Road of a Grade Separated Crossing
		3	Slip Road of a Crossing at Grade
1M	Special Charge	1	Charge in Positive Direction
		2	Charge in Negative Direction
		3	Charge in Both Directions
SR	Special Restrictions	2	Not Publicly Accessible
10	Speed Restriction Type	1	Maximum Speed (default value)
		2	Recommended Speed
		3	Lane Dependent Maximum Speed
7A	Street Name Type	1	Street Name
		2	Highway Name
2T	Stubble	1	Stubble
TR	Toll Information	0	Not a Toll Road
		1	Toll Road
6J	Tourist Attraction Type	0	No Type
		1	Building
		2	Monument
		3	Natural Attraction
		4	Unspecified
2M	Tourist Municipality	1	Yes

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
70	Tourist Road Type	1	Scenic Route
		2	National Route
		3	Regional Route
		4	Nature Route
		5	Cultural Historic Route
TS	Traffic Sign Class	0	Normal (default value)
		1	Variable
30	Traffic Sign Position	1	Left
		2	Right
		3	Left & Right
		4	Above
8Q	Truck Stop	1	Truck Stop Available
1F	Unit of Measurement	1	Km/h
		2	Mph
6L	Urban Area	0	Undefined
		1	Urban
		2	Rural
7V	Validity Direction	1	Valid in both directions
		2	Valid in Positive Line Direction
		3	Valid in Negative Line Direction
6Q	Vehicle Restriction	1	Open in Both Directions
		2	Closed in Positive Direction
		3	Closed in Negative Direction
		4	Closed in Both Directions
VT	Vehicle Type	0	All Vehicle Types
		11	Passenger Cars
		12	Residential Vehicle
		16	Taxi
		17	Public Bus
		18	Private Bus
		20	Delivery Truck
		21	Transport Truck
		22	Motorcycle
		98	Standard Vehicles
VT	Vehicle Type (vehicle restriction)	99	Extended Vehicles
		24	Bicycle
1N	Verification Flag for Speed Restriction	0	Not Verified (default value)
		1	Verified
WD	Water Display Class	1	First Class (highest)
		2	Second Class
		3	Third Class
		4	Fourth Class
		5	Fifth Class (lowest)

**Table 104: Attribute Code, Name, Value, and Description (Continued)**

Code	Attribute Name	Value	Value Description
WT	Water Element Type	0	No Type
		1	Seas and Oceans
		2	Lake
		7	Water Element Type Others
8Z	z-level information	1	Z Level +1
		2	Z Level +2
		3	Z Level +3
		4	Z Level +4
		5	Z Level +5
		6	Z Level +6
		7	Z Level +7
		8	Z Level +8
		9	Highest Z Level
		-1	Z Level -1
		-2	Z Level -2
		-3	Z Level -3
		-4	Z Level -4
		-5	Z Level -5
		-6	Z Level -6
		-7	Z Level -7
		-8	Z Level -8
		-9	Lowest Z Level
		0	Ground Z Level

**Table 105: Relationship Code and Name**

Code	Relationship Name
1001	Road element in order 8 area
1003	Road Element in Named Area
1006	Service in order 8 area
1007	Built-up area in order 8 area
1008	Ferry Connection in Order 8 Area
1010	Enclosed traffic area in order 8 area
1011	Road element in built-up area
1013	Ferry Connection in Named Area
1014	Service in Named Area
1016	Service in built-up area
1022	Service along road element
1024	Service at junction
1026	Service belonging to Service
1029	Centre Point of Feature belonging to Feature
2101	Calculated Prohibited Manoeuvre

**Table 105: Relationship Code and Name (Continued)**

<b>Code</b>	<b>Relationship Name</b>
2102	Restricted Manoeuvre
2103	Implicit Turn
2103	Prohibited Manoeuvre
2104	Priority Manoeuvre
2128	SignPost Information
2200	Grade Separated Crossing
2300	Traffic Sign along Road Element
2400	Place within Place
9001	Vicinity: Service - Order 8 Area
9201	Address Area in Named Area
9202	Enclosed Traffic Area in Named Area
9203	Built-Up Area in Named Area
9204	Area Replaced by Index Area
9401	Bifurcation
9501	Road element in order 9 area
9502	Service in order 9 area
9503	Order 9 area in order 8 area
9504	Enclosed traffic area in order 9 area
9805	Ferry Edge belonging to Ferry Connection
9805	Road Edge belonging to Road Element
9810	Railway Edge belonging to Railway Element
9856	Ferry Terminal along Ferry Connection
9860	Lane Connectivity

**Table 106: Relationship Name and Code**

<b>Relationship Name</b>	<b>Code</b>
Address Area in Named Area	9201
Area Replaced by Index Area	9204
Bifurcation	9401
Built-Up Area in Named Area	9203
Built-up area in order 8 area	1007
Calculated Prohibited Manoeuvre	2101
Centre Point of Feature belonging to Feature	1029
Enclosed Traffic Area in Named Area	9202
Enclosed traffic area in order 8 area	1010
Enclosed traffic area in order 9 area	9504
Ferry Connection in Named Area	1013
Ferry Connection in Order 8 Area	1008
Ferry Edge belonging to Ferry Connection	9805
Ferry Terminal along Ferry Connection	9856
Grade Separated Crossing	2200

**Table 106: Relationship Name and Code (Continued)**

Relationship Name	Code
Implicit Turn	2103
Lane Connectivity	9860
Order 9 area in order 8 area	9503
Place within Place	2400
Priority Manoeuvre	2104
Prohibited Manoeuvre	2103
Railway Edge belonging to Railway Element	9810
Restricted Manoeuvre	2102
Road Edge belonging to Road Element	9805
Road Element in Named Area	1003
Road element in built-up area	1011
Road element in order 8 area	1001
Road element in order 9 area	9501
Service along road element	1022
Service at junction	1024
Service belonging to Service	1026
Service in Named Area	1014
Service in built-up area	1016
Service in order 8 area	1006
Service in order 9 area	9502
SignPost Information	2128
Traffic Sign along Road Element	2300
Vicinity: Service - Order 8 Area	9001

## Appendix 2: GDF 4.0 Time Domains

### Introduction

---

This appendix describes in detail the GDF 4.0 Time Domains. For more information see "GDF - Geographic Data Files -Version 4.0 (ISO/CD 2001-02-14)". The same definition is used for Table 31 "TD Time Domains" on page 45.

### General Description

---

Generally a Time Domain is composed of a Starting Date and/or a Time Duration with the following notation:

[(Starting Date ) { Time duration }].

For example,

[(M5d1){d1}]

means :

- Starting Date : any year, month 5 (May), day 1st, at 0: 00am.
- Duration : 1 complete day (i.e. 24 hours or 1440 minutes).

Special cases of a Time Domain are :

- A Starting Date without a specified duration and
- A time period specified by means of a Time Duration only

It is specific for each time domain-related *Attribute Type* whether the general syntax or one of the two special cases mentioned is appropriate for representing the respective time domain value.

# starting Date Syntax

## Introduction

---

Starting Dates are defined by means of a set of graphical symbols allowing the description of 'sharp' time terms: years, months, weeks, days, and so on down to the smallest time unit which is the second. Following afterwards are the 'fuzzy' times, times which do not have a universal definition. Times, which while well defined, behave differently in different places and different times. The symbols have to be organized in a sequential order starting with the longest time unit, decreasing towards the smallest, and ending with the fuzzy time units. Valid symbol combinations are shown in Figure Figure 1—Valid symbol combinations of starting dates

Each particular symbol is composed of a time type code which indicates a particular time unit (e.g. y for year) and a certain number of digits which represent the time values (up to 4 digits).

## Sharp Time Terms

---

### Year

y<sup>n</sup>Defines a particular year. E.g., (y1991) means the year 1991. When no more information is given, (y1991) means 1st of January 1991 at 0: 00: 00 am.

### Month

M<sup>n</sup>Defines a particular month within a particular year, or any year when no "y" information is given. The domain runs from 1 to 12, meaning January and December respectively. (M5) means every 1st of May at 0: 00: 00 am, whatever the year may be.

### Week

w<sup>n</sup>Defines a week within a previously defined year, or any year when no "y" information is given. The domain runs from 1 to 53 indicating week number 1 and week number 53 respectively.

### Day

Four different time type codes for a "Day" are defined. The code which has to be used depends on whether a particular day in a month, a particular day of the week or a day in a particular week of a month needs to be represented.

dnnDefines a particular day within a particular month if previously defined with the "M" format. When no month information is given, (dnn ) means the nnth day in any month. For example, (...d14) means the 14th day in the previously defined month (if any), in the previously defined year (if any) at 0: 00: 00 am. The domain runs from 1 to 28,29,30 or 31, depending on the month.

tnDefines a particular weekday in a previously (if any) defined week. Domain of values is the following: 1: Sunday, 2: Monday, 3: Tuesday, 4: Wednesday, 5: Thursday, 6: Friday, and 7: Saturday. For example, (M5t2) means each Monday in the 5th month (May) of any year, at 0: 00: 00 am.

fxnDefines a particular weekday in a previously (if any) defined month, with the following rules: n is used as in the "t" format with the same domain of values, 1: Sunday up to 7: Saturday. For "x" one of the following values has to be substituted: 1: first, 2: second, 3: third, 4: fourth, and 5: fifth. For example: (...f12) means the first Monday at 0: 00: 00 am.

lxnDefines a particular weekday in a previously (if any) defined month, with the following rules: n is used as for the "t" format with the same domain of values, 1: Sunday up to 7: Saturday. x has to be chosen from the following set: 1: last, 2: last but one, 3: last but two, 4: last but three, and 5: last but four. For example, (...l12) means the last Monday at 0: 00: 00 am.

#### Hour

hnnDefines a particular hour within a particular day (if previously defined). When no day is specified, it means that every day is valid. The domain runs from 0 to 23. For example, (d12h6) means every 12th day of a month at 6: 00: 00 am.

#### Minute

mnnDefines a particular minute within a particular hour (if previously defined). When no hour is defined, it means that any hour is valid. The domain runs from 0 to 59. For example, (d12h6m30) means every 12th day of a month at 6: 30: 00 am.

#### Second

snnDefines a particular second within a particular minute (if previously defined). When no minute is specified, it means that any minute is valid. nn domain is from 0 to 59. For example, (d12h6m30s52) means every 12th day of a month at 6: 30: 52 am.

#### Fuzzy Time Terms

znnDefines a fuzzy time term within the preceding sharp time (if previously defined). When no previous time is specified, it means that any occurrence of the fuzzy term is valid. The domain for nn ranges from 0 to 49 (see tables XX and YY for fuzzy time semantics). For example, (d12h6m30s52z57) means every 12th day of any month at 6: 30: 52 am during the Summer.

**Table 107: Summarizing table of all 'sharp' symbols**

Time Unit	Reference time frame	Notation	Value Domain	Explanation of Values
Year		ynnnn	1000...9999	any year
Month	in a Year	Mnn	1...12	January, February, etc. to December
Week	in a Year	Wnn	1...53	
Day	in a Month	dnn	1...28/29/30 /31	Maximum value depends on the month
Day	of the Week	tn	1...7	Sunday to Saturday
Weekday	of a particular Week	fxn	X: 1...5	first, second, etc. week of the month
	of a Month		n: 1...7	Sunday to Saturday
Weekday	of a particular Week	lxn	X: 1...5	last, last but one, etc. week of the month
	of a Month		n: 1...7	Sunday to Saturday
Hour	of the day	hnn	0...23	24 hours format
Minute	of an hour	mnn	0...59	
Second	of a minute	snn	0...59	

**Table 108: Summarizing tables of "fuzzy" start symbols**

time unit	reference time frame	notation	value domain	explanation of values
External	Any	z0		Starting period controlled by external device. Examples of such devices can be found in the Korean city of Kwatches which uses digital signs to control flow of traffic. Also, in the US, there are ramps which regulate access by means centralized traffic control.
Dawn	Within a day	z1		Starts at Dawn
Dusk	Within a day	z2		Starts at Dusk

**Table 108: Summarizing tables of “fuzzy” start symbols (Continued)**

time unit	reference time frame	notation	value domain	explanation of values
School	Within a year, week, or day	z3		Starts at any school period (date and hour)
Holiday	Within a year	z4		Starts at any Holiday
Winter	Within a year	z5		Beginning of Winter
Spring	Within a year	z6		Beginning of Spring
Summer	Within a year	z7		Beginning of Summer
Autumn	Within a year	z8		Beginning of Autumn
High Tide	Within a day	z9		Start of High Tide
Low Tide	Within a day	z10		Start of Low Tide
High Water	Within a year	z11		Start of River High Water
Low Water	Within a year	z12		Start of River Low Water
Wet Season	Within a year	z13		Start of Wet Season (Rainy Season)
Dry Season	Within a year	z14		Start of Dry Season
Peak Hours	Within a year, month, week, or a day	z15		Start of Peak Hours: Peak hours include rush hour and activity / scheduled event based times. These would vary by location and by season. Peak hours are applicable not only to road networks but ferries as well. Examples of activities include shopping, beach going, and skiing. Examples of scheduled events include parades, sporting events, concerts, conventions.
Off-Peak Hours	Within a year, month, week, or a day	z16		Start of Off-Peak Hours

**Table 108: Summarizing tables of “fuzzy” start symbols (Continued)**

time unit	reference time frame	notation	value domain	explanation of values
User Defined	Any	z17-z49		User Defined Starting Fuzzy types

**Table 109: Summarizing table of ‘fuzzy’ duration symbols**

time unit	Reference time frame	notation	value domain	explanation of values
External	Any	z50		Duration period controlled by external device. Examples of such devices can be found in the Korean city of Kwatchen which uses digital signs to control flow of traffic. Also, in the US, there are ramps which regulate access by means centralized traffic control.
Dawn till Dusk	Within a “day”	z51		Duration of Dawn till Dusk
Dusk till Dawn	Within a “day”	z52		Duration of Dusk till Dawn
School	Within a year, week, or day	z53		Duration of School time (a possibly non contiguous duration)
Holiday	Within a year	z54		Duration of Holiday (a possibly non contiguous duration)
Winter	Within a “year”	z55		Duration of Winter
Spring	Within a “year”	z56		Duration of Spring
Summer	Within a “year”	z57		Duration of Summer
Autumn	Within a “year”	z58		Duration of Autumn
High Tide	Within a “day”	z59		Duration of “High Tide”
Low Tide	Within a “day”	z60		Duration of “Low Tide”
High Water	Within a “year”	z61		Duration of “River High Water” period
Low Water	Within a “year”	z62		Duration of “River Low Water” period

**Table 109: Summarizing table of 'fuzzy' duration symbols (Continued)**

time unit	Reference time frame	notation	value domain	explanation of values
Wet Season	Within a "year"	z63		Duration of Wet Season (Rainy Season)
Dry Season	Within a "year"	z64		Duration of Dry Season
Peak Hours	Within a year, month, week, or a day	z65		Duration of Peak Hours (Rush hours on freeway for instance) (a possibly non-contiguous duration).
Off-Peak Hours	Within a year, month, week, or a day	z66		Duration of Off-Peak Hours (a possibly non contiguous duration)
User Defined	Any	z67-z99		User Defined Duration Fuzzy types

# Valid Format Combinations and Default Values for Starting Dates

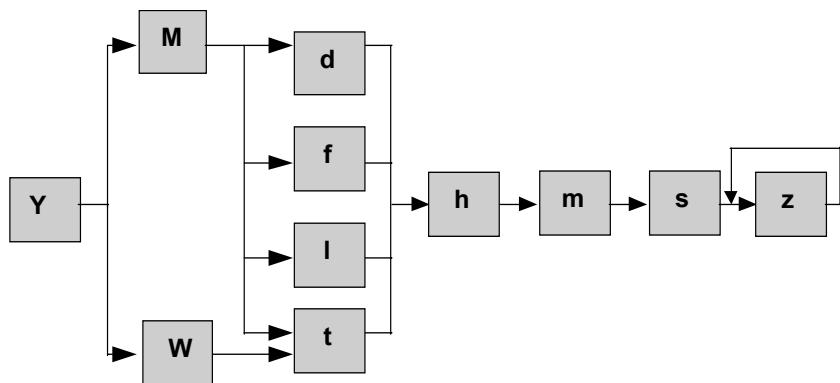
## General Aspects of the Combination of Starting Date Formats

---

Starting Dates, which are composed of several time units (e.g. 14th of November 1991), are defined by placing the symbols sequentially in a hierarchical order.

However, some constraints have to be taken into account.

Valid possible symbol sequences are shown in the following figure:



A minus sign '-' may precede any term to allow for subtractive values.

If not all time type codes of a format combination are used (e.g. only a week and an hour are specified), default values are adopted for the undefined time units. For the fuzzy times, the default value is non-presentation!

## General Rule for Default Values

---

To find the default value for a particular time unit that is undefined in a Starting Date sequence, a distinction has to be made whether the missing time type code is a "final" one or not.

- "Final" time type Codes: For all time type codes that are missing at the end of a sequence, the default value is the lowest possible value (i.e. M1, w1, d1, h0, m0, and s0). If no "Day" is specified (i.e. none of the "d, t, f, l" formats are used) within a defined year and/or month, the default time code and the default value is d1

- "Other" time type codes: If time type codes are missing at the beginning of a sequence or between defined time units, this means that all values of the missing time code are valid.

Examples for default values of undefined time units:

**(y1994t1)** means:

year 1994, any month/any week, each Sunday (t1), time 00: 00: 00 am

**(w9h11m30)** means:

9th week of any year, any day in this week, 11.30 am, 0 sec.

**(M4)** means:

any year, 1st of April, time 00: 00: 00 am

**(M4m33)** means:

any year, April, any day of April, any hour at 33 minutes and 0 seconds.

**(y1994t1z1)** means:

Year 1994, any month / any week, each Sunday (t1), at the fuzzy time when Dawn begins. Since the fuzzy value of Dawn contains in it the notion of 'lower order' sharp, Hours, Minutes, and Seconds are not set to their usual default values. Note that the other fuzzy values which are missing (such as z13 or z27) are simply ignored and no default value is substituted for them.

**(w9z3)** means:

9<sup>th</sup> week of any year, any day in this week, at the time at which the school period begins on each of these days (if school is in session on that particular day).

**(M4z4)** means:

Any year in the Month of April, at each time in which a Holiday begins. If there are no Holidays in the Month of April, this is an empty reference.

**(m33z55)** means:

Any year, Winter, any day in the fuzzy period of Winter, any hour at 33 minutes and 0 seconds.

## Detailed Description of Possible Combinations and Default Values

---

**y** : If no additional "M, w, d, t, f, l, h, m, s" information is given, the default value is M1d1h0m0s0 for the 1st of January at 0: 00: 00 am in the defined year.

**M** : If no additional "y" information is given, it means that any year is valid. If no additional "d, t, f, l, h, m, s" information is given, the default value is d1h0m0s0 for the 1st day in the defined month at 0: 00: 00 am. No "w" format can be used in combination with the "M" format.

**w** : If no "y" extra information is given, it means any year is valid. If no "t, h, m, s" extra information is given, the implicit value is t1h0m0s0 for Sunday in the defined week at 0: 00: 00 am. No "M, d, l, f" format can be used in combination with the "w" format.

**d** : If no additional "y" and/or "M" information is given, it means that any month and/or any year is valid. If no additional "h, m, s" information is given, the default value is h0m0s0 for 0: 00: 00 am on the defined day. No "w, t, l, f" format can be used in combination with the "d" format.

**t** : If no additional "y" and/or "M" or "w" information is given, it means that any month or any week and/or any year is valid. If no "h, m, s" extra information is given, the default value is h0m0s0 for 0: 00: 00 am on the defined day. No "d, l, f" format can be used in combination with the "t" format.

**f** : If no "y" and/or "M" information is given, it means that any month and/or any year is valid. If no additional "h, m, s" information is given, the default value is h0m0s0 for 0: 00: 00 am on the defined day. No "w, d, t, l" format can be used in combination with the "f" format.

**l** : If no "y" and/or "M" information is given, it means that any month and/or any year is valid. If no "h, m, s" extra information is given, the default value is h0m0s0 for 0: 00: 00 am on the defined day. No "w, d, t, f" format can be used in combination with the "l" format.

**h** : If no "y, M, w, d, t, l, f" information is given, it means that any day is valid. If no "m, s" information is given, the default value is m0s0 in the hour in question.

**m** : If no "y, M, w, d, t, l, f" information is given, it means that any day is valid. If no "h" information is given, it means that any hour in the previously defined day is valid. If no "s" information is given, the default value is s0 in the minute in question.

**s** : If no "y, M, w, d, t, l, f" information is given, it means that any day is valid. if no "h" information is given, it means that any hour in the previously defined day is valid. if no "m" information is given, it means that any minute in the previously defined hour is valid.

z0,

**z50** : [External] Since the extent of the time specified externally is not yet determined, it is difficult to assign default values. The "logically correct" behavior is expected.

z1,

**z51** : [Dawn, Dawn to Dusk] If no "y, M, w, d, t, l, f" information is given, it means that any day applies (either as a start time or as a duration time). "h, m, s" information should not be provided.

z2,

**z52** : [Dusk, Dusk to Dawn] If no "y, M, w, d, t, l, f" information is given, it means that any day applies (either as a start time or as a duration time). "h, m, s" information should not be provided.

z3,

**z53** : [School] If no "y, M, w, d, t, l, f" information is given, it means that any day when school is in session applies (either as a start time or as a duration time). If "y, M, w, d, t, l, f" information is completely given, and z3 is present, "h, m, s" must not be provided, z3 is the actual equivalent to the "h, m, s" of the beginning of the time during the day of the school session. If no "y, M, w, d, t, l, f" information is given, and z3 is present, "h, m, s" may be provided. If "h, m, s" information is provided it designates the start time within the school session day already specified.

z4,

**z54** : [Holiday] If no "y, M, w, d, t, l, f" information is given, it means that any holiday day applies (either as a start time or as a duration time). If "h, m, s" information is provided it designates the start time within the holiday day already specified.

z5,

**z55** : [Winter] If no "y, d, t, l, f" information is given, it means that any Winter day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z5. If "h, m, s" information is provided it designates the start time within the Winter day(s) already specified.

z6,

**z56** : [Spring] If no "y, d, t, l, f" information is given, it means that any Spring day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z6. If "h, m, s" information is provided it designates the start time within the Spring day(s) already specified.

z7,

**z57** : [Summer] If no "y, d, t, l, f" information is given, it means that any Summer day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z7. If "h, m, s" information is provided it designates the start time within the Summer day(s) already specified.

z8,

**z58** : [Autumn] If no "y, d, t, l, f" information is given, it means that any Autumn day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z8. If "h, m, s" information is provided it designates the start time within the Autumn day(s) already specified.

z9,

**z59 : [High Tide]** If no "y, M, w, d, t, l, f" information is given, it means that any day applies (either as a start time or as a duration time). "h, m, s" information should not be provided.

z10,

**z60 : [Low Tide]** If no "y, M, w, d, t, l, f" information is given, it means that any day applies (either as a start time or as a duration time). "h, m, s" information should not be provided.

z11,

**z61 : [High Water]** If no "y, d, t, l, f" information is given, it means that any High Water day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z11. If "h, m, s" information is provided it designates the start time within the High Water day(s) already specified.

z12,

**z62 : [Low Water]** If no "y, d, t, l, f" information is given, it means that any Low Water day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z12. If "h, m, s" information is provided it designates the start time within the Low Water day(s) already specified.

z13,

**z63 : [Wet Season]** If no "y, d, t, l, f" information is given, it means that any Wet Season day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z13. If "h, m, s" information is provided it designates the start time within the Wet Season day(s) already specified.

z14,

**z64 : [Dry Season]** If no "y, d, t, l, f" information is given, it means that any Dry Season day applies (either as a start time or as a duration time). "M, w" information may not be specified together with z14. If "h, m, s" information is provided it designates the start time within the Dry Season day(s) already specified.

z15,

**z65 : [Peak Hours]** If no "y, M, w, d, t, l, f" information is given, it means that any day is valid. "h, m, s" information should not be provided.

z16,

**z66 : [Off-Peak Hours]** If no "y, M, w, d, t, l, f" information is given, it means that any day is valid. "h, m, s" information should not be provided.

Table of allowed and forbidden format combinations

The following table shows valid combinations of Starting Date formats. For each format A of the first column all possible formats B that can follow in a Starting Date sequence are marked by an '\*' in the corresponding line. Since the table is too large to fit on the page in one piece, it is broken down to 4 quadrants.

For example, (M5w1) week 1 in month 5 (May) is not correct, but (y1991w1) week 1 in year 1991 is allowed.

**Table 110: Combination Specific - Specific**

	B	y	M	w	d	t	f	l	h	m	s
A											
y		*	*	*	*	*	*	*	*	*	*
M				*	*	*	*	*	*	*	*
w					*			*	*	*	*
d								*	*	*	*
t								*	*	*	*
f								*	*	*	*
l									*	*	*
h									*	*	*
m										*	
s											

**Table 111: Combination Specific - Fuzzy**

z	B	z0	z1	z2	z3	z4	z5	z6	z7	z8	z9	z10	z11	z12	z13	z14	z15	z16
A																		
y		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
M		*	*	*	*				*	*						*	*	*
w		*	*	*	*				*	*						*	*	*
d		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
f		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
l		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

**Table 111: Combination Specific - Fuzzy (Continued)**

<b>z</b>	<b>B</b>	<b>z0</b>	<b>z1</b>	<b>z2</b>	<b>z3</b>	<b>z4</b>	<b>z5</b>	<b>z6</b>	<b>z7</b>	<b>z8</b>	<b>z9</b>	<b>z10</b>	<b>z11</b>	<b>z12</b>	<b>z13</b>	<b>z14</b>	<b>z15</b>	<b>z16</b>
<b>h</b>			*	*	*	*	*	*	*			*	*	*	*			
<b>m</b>			*	*	*	*	*	*	*			*	*	*	*			
<b>s</b>			*	*	*	*	*	*	*			*	*	*	*			

Since the 3<sup>rd</sup> quadrant of this table provides no additional information over the 2<sup>nd</sup> quadrant, it is omitted from this manuscript.

**Table 112: Combination Fuzzy - Fuzzy**

<b>z</b>	<b>B</b>	<b>z0</b>	<b>z1</b>	<b>z2</b>	<b>z3</b>	<b>z4</b>	<b>z5</b>	<b>z6</b>	<b>z7</b>	<b>z8</b>	<b>z9</b>	<b>z10</b>	<b>z11</b>	<b>z12</b>	<b>z13</b>	<b>z14</b>	<b>z15</b>	<b>z16</b>
<b>A</b>																		
<b>z0</b>																		
<b>z1</b>			*	*	*	*	*	*	*			*	*	*	*			
<b>z2</b>			*	*	*	*	*	*	*			*	*	*	*	*	*	
<b>z3</b>		*	*			*	*	*	*			*	*	*	*	*	*	
<b>z4</b>		*	*			*	*	*	*			*	*	*	*	*	*	
<b>z5</b>		*	*	*	*		*	*	*			*	*			*	*	
<b>z6</b>		*	*	*	*		*	*	*			*	*			*	*	
<b>z7</b>		*	*	*	*		*	*	*			*	*			*	*	
<b>z8</b>		*	*	*	*		*	*	*			*	*			*	*	
<b>z9</b>			*	*	*		*	*	*			*	*			*	*	
<b>z10</b>			*	*	*		*	*	*			*	*			*	*	
<b>z11</b>		*	*	*	*							*	*		*	*	*	
<b>z12</b>		*	*	*	*							*	*		*	*	*	
<b>z13</b>		*	*	*	*							*	*			*	*	
<b>z14</b>		*	*	*	*							*	*			*	*	
<b>z15</b>					*	*	*	*	*			*	*		*	*		
<b>z16</b>					*	*	*	*	*			*	*		*	*		

## Starting Date Examples

---

"14th November 1991 (at 0: 00: 00 am)" :  
(y1991M11d14).

"Every 2nd of May at 5: 31 pm (any year, default second=00)" :  
(M5d2h17m31).

"Each last Sunday in February ( any year, at 0: 00: 00 am)" :  
(M2l11).

"Monday in week 41 year 1991 ( at 0: 00: 00 am)" :  
(y1991w41t2).

"July 1962 ( by default the 1st of July at 0: 00: 00 am)"  
(y1962M7).

"Start of High Tide on 14th November 1991" :  
(y1991M11d14z9).

"Every 2nd day of any month during the Wet Season at 5: 31 pm (any year,  
default second=00)" :  
(d2h17m31z63).

"Each last Sunday in February at the onset of Peak Hours (rush hours) (any year, at  
0: 00: 00 am)" :  
(M2l11z15).

"Monday at onset of Dusk during Spring in the year 1991" :  
(y1991t2z2z56).

# Time Duration Syntax

## Introduction

---

The syntax specified in this section enables the description of intervals by means of a set of symbols representing the time duration units year, month, week, day, hour, minute, second, and the collection of fuzzy time markers. Together with a starting date, the interval constitutes a basic Time Domain.

The symbol is composed of a duration type code, which indicates a particular time duration unit (e.g. y for year) and up to 2 digits which are destined for the time duration values. If the very first time type code is preceded by a minus sign, it means that the duration is counted in the reverse order.

### Years

ynn: Defines a duration of nn years. For example, [(y1991M11d14h5m30s19){y1}] means from 14 November 1991, 5: 30: 19 am to 14 November 1992, 5: 30: 19 am. If there is no identical calendar date in the year in question, which occurs only for February the 29th, "plus 1 year" leads to February the 28th of the following year. Notice that {y1} = {M12}.

### Months

Mnn: Defines a duration of nn months. For example, [(y1991M11d14h5m30s19){M3}] means from 14 November 1991, 5: 31: 19 am to 14 February 1992, 5: 30: 19 am.

If there is no identical calendar date in the target month in question, the last day in this month should become the target calendar day. For example, 31st of January plus 1 month leads to 31st of February, which is not correct. According to the rule mentioned above, 31 January plus 1 month leads to 28 or 29 February depending on the year.

### Weeks

wnn: Defines a duration of nn weeks, i.e. nn<sup>\*</sup>7 days. For example, [(y1991M11d14h5m30s19){w2}] means from 14 November 1991 at 5: 30: 19 am to 28 November 1991, 5: 30: 19 am. Notice that {w1} = {d7}.

### Days

dnn: Defines a duration of nn days, i.e. nn<sup>\*</sup>24 hours. For example, [(y1991M11d14h5m30s19){d2}] means from 14 November 1991 at 5: 30: 19 am to 16 November 1991, 5: 30: 19 am. Notice that {d1} = {h24}.

### Hours

hnn: Defines a duration of nn hours, i.e. nn\*60 minutes. For example, [(y1991M11d14h5m30s19){h10}] means from 14 November 1991, 5: 30: 19am to 14 November 1991 at 3: 30: 19 pm. Notice that {h1} = {m60}.

### Minutes

mnn: Defines a duration of nn minutes, i.e. nn\*60 seconds. For example, [(y1991M11d14h5m30s19){m11}] means from 14 November 1991 at 5: 30: 19am to 14 November 1991 at 5: 41: 19 am. Notice that {m1} = {s60}.

### Seconds

snn: Defines a duration of nn seconds. For example, [(y1991M11d14h5m30s19){s21}] means from 14 November 1991 at 5: 30: 19am to 14 November 1991 at 5: 30: 40 am. Notice that {m1} = {s60}.

### Fuzzy Terms

znnDefines a fuzzy time duration. The domain for nn ranges from 50 to 99 (see tables XX and YY for fuzzy time semantics). For example, (z51) means the duration from Dawn to Dusk.

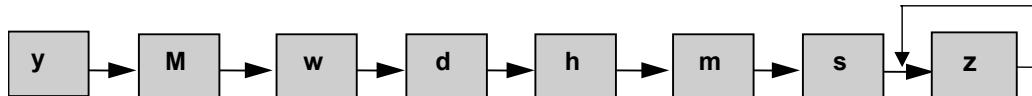
Table 113: Summarizing table of all symbols

time unit	notation	value domain	substitutions	remarks
Year	ynn	1...99		If there is no existing identical calendar date in the target year, the last day of the target month will be seen as the target calendar day (can occur for starting date February 29th)
Month	mnn	1...99	{M12} = {y1}	If there is no existing identical calendar date in the target month, the last day of this month will be seen as the target calendar day.
Week	wnn	1...99		
Day	dnn	1...99	{d7} = {w1}	
Hour	hnn	1...99	{h24} = {d1}	
Minute	mnn	1...99	{m60} = {h1}	
Second	snn	1...99	{s60} = {m1}	
Fuzzy Time Duration	znn	50...99		z0 through z49 are fuzzy starting times.

# Valid Format Combinations and Default Values for Time Durations

## Combination of Periods

Time periods which are composed of several time duration units are represented by listing the individual symbols sequentially in hierarchical order:



The total time duration of a particular combination of symbols is the sum of all single time intervals.

For example, {y2M1w2} means a period of 2 years, 1 month and 2 weeks.

## Default Values

The default value for each missing time value type in a sequence of basic time intervals is 0 (zero). The default value for a fuzzy time duration is non-presence.

### Time Domain Examples

- "From 9am to 1pm every day"  
Starting date is any year, any month, any day, at 9: 00: 00 am  
(h9)  
Duration is 4 hours.  
{h4}  
So that the complete expression is :  
[(h9){h4}]
- "**From 19: 30 to 22: 00 every Friday in March**"  
Starting date is any year, March, any Friday at 7: 30 pm  
(M3t6h19m30)  
Duration is 2 hours and 30 minutes.  
{h2m30}  
So that the complete expression becomes:  
[(M3t6h19m30){h2m30}]

- "Last 5 minutes before New Year 1992"  
 Starting date is the 1st of January 1992 at 0: 00: 00 am  
 $(y1992)$  implies the 1st of January at 0: 00: 00 am  
 Duration is minus 5 minutes.  
 $\{-m5\}$   
 So that the complete expression becomes:  
 $[(y1992)\{-m5\}]$
- "**From Dawn to Dusk**"  
 Starting time is any year, any month, any day, at Dawn  
 $(z1)$   
 Duration is Dawn to Dusk.  
 $\{z51\}$   
 So that the complete expression is :  
 $[(z1)\{z51\}]$
- "**From 1 hour before Dawn to 1 hour after Dusk**"  
 Starting time is any year, any month, any day, an hour before Dawn  
 $(z1-h1)$   
 Duration is Dawn to Dusk plus 1 hour.  
 $\{h1z51\}$   
 So that the complete expression is :  
 $[(z1-h1)\{h1z51\}]$
- "**While school is in session**"  
 Starting time is any year, any school day, at beginning of any school time  
 $(z3)$   
 Duration is school session time.  
 $\{z53\}$   
 So that the complete expression is :  
 $[(z3)\{z53\}]$
- "**In summer and autumn**"  
 Starting time is any year, at onset of summer day, at midnight  
 $(z7)$   
 Duration is summer and autumn.  
 $\{z57z58\}$   
 So that the complete expression is :  
 $[(z7)\{z57z58\}]$
- "**During Peak Hours in Winter**"  
 Starting time is any year, in Winter, at the start of any of the Peak Hour periods  
 $(z55z15)$   
 Duration is Peak Hour period.  
 $\{z65\}$   
 So that the complete expression is :  
 $[(z55z15)\{z65\}]$

# Time Domain Combinations

## General Aspects

---

Since Time Domains can be considered as a set of the smallest time unit described here, the second, Time Domains may also be combined with set operations, such as:

Union of setsnotation : +

Intersection of setsnotation : \*

Subtraction of setsnotation : -

## Example

---

A shop is assumed to be "Open to all users": From 9: 00am to 12: 00am plus from 13: 30 to 19: 00 each day from Monday to Saturday, except each 1st of May, last Tuesday of January for inventory reasons, and during August (holidays).

The way to code this is to attach the *Attribute* "Opening Period" to the *Feature* "Shopping Center". The Opening Period refers by means of a Time Domain ID to a corresponding Time Domain Record that contains all opening information.

Because of De Morgan's theorem,  $A * (B + C) = (A * B) + (A * C)$ , there are many different symbol combinations to represent the same complex Time Domain.

The example described above can be solved by the following combination of basic Time Domains :

"From 9: 00am to 12: 00am" is  $[(h9)\{h3\}]$

"From 13: 30 to 19: 00" is  $[(h13m30)\{h5m30\}]$

"From 9: 00am to 12: 00am and From 13: 30 to 19: 00" becomes:

$[(h9)\{h3\}] + [(h13m30)\{h5m30\}]$

Since this is valid only from Monday to Saturday, an intersection operation is required with the Time Domain "Any week from Monday to Saturday", represented by  $[(t2)\{d6\}]$

The expression now becomes :  $[( [(h9)\{h3\}] + [(h13m30)\{h5m30\}] ] * [(t2)\{d6\}]$

We will now deal with the restrictions :

"1st of May every year", which is represented as  $[(M5d1)\{d1\}]$

"last Tuesday of January" which is represented as  $[(M1l13)\{d1\}]$

"All days during August" which is represented as  $[(M8)\{M1\}]$

The final expression becomes then :

$$\begin{aligned} & [ \\ & [ [ [(h9)\{h3\}] + [(h13m30)\{h5m30\}] ] ^* [(t2)\{d6\}] ] \\ & -[(M5d1)\{d1\}] \\ & -[(M1l13)\{d1\}] \\ & -[(M8)\{M1\}] \\ & ] \end{aligned}$$

# Resolution of a Time Equation

## Introduction

The problem is to know whether a particular moment (second) belongs to a given Time Domain or not. When the moment in question is within that Time Domain, the boolean value True is attached to the Time Domain.

If not, the boolean value evaluates to False.

## Boolean Tables

" $*$ " is the boolean AND operator, "+" is the OR operator, and " $-$ " is the "A AND NOT B" operator.

The boolean tables for Time Domain combinations are :

**Table 114: A AND B**

A + B	B	True	False
A			
True		T	T
False		T	F

**Table 115: A OR B**

A * B	B	True	False
A			
True		T	F
False		F	F

**Table 116: A AND NOT B**

A - B	B	True	False
A			
True		F	T
False		F	F

## Example of a Resolution

---

Assume we want to know if the previous shop is open on 14 November 1991 at 10: 20 am. We have to check if this particular moment fits with the Time Domain where the *Attribute* Opening Period refers to.

14 November 1991, 10: 20 am matches the following basic domains:  
y1991 / M11 / w46 / d14 / t5 / f25 / l25 / h10 / m20 / s0

A check of the defined Time Domain results in:

"From 9: 00 am to 12: 00am":  $[(h9)\{h3\}]$  is True

"From 13: 30 to 19: 00":  $[(h13m30)\{h5m30\}]$  is False "From Monday to Saturday":  $[(t2)\{d6\}]$  is True

Therefore the expression  $[[[(h9)\{h3\}] + [(h13m30)\{h5m30\}]] * [(t2)\{d6\}]]$  is True

"1st of May every year":  $[(M5d1)\{d1\}]$  is False

"last Tuesday of January":  $[(M1l13)\{d1\}]$  is False "All during August":  $[(M8)\{M1\}]$  is False

Thus the complete expression

```
[  
  [[[(h9)\{h3\}] + [(h13m30)\{h5m30\}]] * [(t2)\{d6\}]] -[(M5d1)\{d1\}]  
  -[(M1l13)\{d1\}]  
  -[(M8)\{M1\}]  
]
```

evaluates to True: The shop is open.



## Appendix 3: How to Contact Tele Atlas

### Introduction

---

This has the current e-mail, telephone, and address information for Tele Atlas. The worldwide website, <http://www.teleatlas.com/>, has the latest information.

### Tele Atlas Europe General Information

---

- E-mail: [info@teleatlas.com](mailto:info@teleatlas.com)
- Telephone: +32 9 244 88 11  
Voicemail handles all calls received during non-business hours.
- Street address:

**Moutstraat 132,**  
**B-9000 Gent**  
**Belgium**
- Business hours: Monday-Friday 8:30 AM - 5:30 PM (GMT + 1)
- For other European offices, please see  
[http://www.teleatlas.com/frames.jsp?page=corp\\_contact.htm](http://www.teleatlas.com/frames.jsp?page=corp_contact.htm)

### Tele Atlas North America General Information

---

- E-mail: [info@na.teleatlas.com](mailto:info@na.teleatlas.com)
- Telephone: 1 800 765 0555, toll free for USA only; or +1 650 328 3825  
You can telephone during normal business hours for sales, general information, and technical support. Voicemail handles all calls received during non-business hours, generally before 8:00 AM and after 5:00 PM Pacific Time.
- Fax: 1 650 328 3148
- Street address:

**1605 Adams Drive**  
**Menlo Park, CA 94025-1448**  
**USA**
- Reception hours: 7:45 AM - 5:30 PM, Pacific Time (GMT -8)

## Sales and Technical Support E-Mail Addresses

---

Country or Region	Sales Support	Technical Support
Austria	<a href="mailto:sales.aut@teleatlas.com">sales.aut@teleatlas.com</a>	<a href="mailto:support.aut@teleatlas.com">support.aut@teleatlas.com</a>
Belgium & Luxembourg	<a href="mailto:sales.bel@teleatlas.com">sales.bel@teleatlas.com</a>	<a href="mailto:support.bel@teleatlas.com">support.bel@teleatlas.com</a>
France	<a href="mailto:sales.fra@teleatlas.com">sales.fra@teleatlas.com</a>	<a href="mailto:support.fra@teleatlas.com">support.fra@teleatlas.com</a>
Germany	<a href="mailto:sales.deu@teleatlas.com">sales.deu@teleatlas.com</a>	<a href="mailto:support.deu@teleatlas.com">support.deu@teleatlas.com</a>
Italy	<a href="mailto:sales.ita@teleatlas.com">sales.ita@teleatlas.com</a>	<a href="mailto:support.ita@teleatlas.com">support.ita@teleatlas.com</a>
Japan	<a href="mailto:sales.jpn@teleatlas.com">sales.jpn@teleatlas.com</a>	<a href="mailto:support.jpn@teleatlas.com">support.jpn@teleatlas.com</a>
Netherlands	<a href="mailto:sales.nld@teleatlas.com">sales.nld@teleatlas.com</a>	<a href="mailto:support.nld@teleatlas.com">support.nld@teleatlas.com</a>
North America	<a href="mailto:sales@na.teleatlas.com">sales@na.teleatlas.com</a>	<a href="mailto:support@na.teleatlas.com">support@na.teleatlas.com</a>
Portugal	<a href="mailto:sales.prt@teleatlas.com">sales.prt@teleatlas.com</a>	<a href="mailto:support.prt@teleatlas.com">support.prt@teleatlas.com</a>
Scandinavia	<a href="mailto:sales.sca@teleatlas.com">sales.sca@teleatlas.com</a>	<a href="mailto:support.sca@teleatlas.com">support.sca@teleatlas.com</a>
Spain	<a href="mailto:sales.esp@teleatlas.com">sales.esp@teleatlas.com</a>	<a href="mailto:support.esp@teleatlas.com">support.esp@teleatlas.com</a>
Sweden	<a href="mailto:sales.swe@teleatlas.com">sales.swe@teleatlas.com</a>	<a href="mailto:support.swe@teleatlas.com">support.swe@teleatlas.com</a>
Switzerland	<a href="mailto:sales.che@teleatlas.com">sales.che@teleatlas.com</a>	<a href="mailto:support.che@teleatlas.com">support.che@teleatlas.com</a>
United Kingdom	<a href="mailto:sales.gbr@teleatlas.com">sales.gbr@teleatlas.com</a>	<a href="mailto:support.gbr@teleatlas.com">support.gbr@teleatlas.com</a>
others	<a href="mailto:sales@teleatlas.com">sales@teleatlas.com</a>	<a href="mailto:support@teleatlas.com">support@teleatlas.com</a>

This map shows our worldwide office locations. Our vision: To enable customers, partners and the industry at large to develop technology that changes the way we explore the world and the way new environments are built.

