

FOT version 4.0:

Changes since the last edition

Version 2, 20090622

The changes made with FOT version 4.0 are mainly measures for simplification and rationalisation with regard to production and quality assurance of FOT data.

Changes concern the content of the data- and metadata model, the object catalogue, rules and requirements as well as the language and layout, including increased use of illustrations. As a result almost all chapters have been affected by the changes. The most important changes are listed below.

Data- and metadata model

The data and metadata model of FOT is in appendix G in chapter 4.7. Please note that appendix G corresponds to chapter 2 in FOT version 3.2.1. The content has not been revised in FOT version 4.0.

FOTdanmark has decided to leave out attribute metadata as recommended by KL (the national association of municipalities) following the project regarding Open Standards in Geodata. (See report from phase 1 from the 30th of October 2008) The change will have consequences for the joint system FOT2007 but has no effect on the production of FOT data. KLs project is still running at the present and is expected to result in even more substantial recommendations regarding interval attributes among other things. By then FOTdanmark will decide on possibly releasing an entirely new data and metadata model of FOT, in which case appendix G will be replaced by the new models.

Geometric requirements

A number of geometric requirements have been converted into general requirements that apply to all object types rather than special requirements for each object type. The requirements have been made general in order to give a better overview with the purpose of helping the production and quality assurance.

The general requirements concern snap, intersecting lines, break of an object due to origin change, common geometry, points and lines within surfaces and the relationship of one surface to another including rules concerning cut-out. Network rules are made general as well.

As a result of these changes, the sections “Topology” and “Topology schema” for each object type have been left out.

In addition, rules concerning production conditions for secondary attributes, object size and the accuracy of aerial photographs have been clarified. Other geometric requirements have been clarified as well.

Furthermore many rules have been complemented by illustrations.

See chapter 2.1 and appendix L where rules for points and lines within surfaces are defined, and appendix M which defines rules for common geometry.

Quality

The demands made on the quality of FOT data have been updated. A number of error counting methods have been devised to calculate the number of errors, and a check list of legal object types, attribute types, attribute values and combinations of attribute values have been introduced.

See chapter 2.2 as well as appendix N where the attribute check list can be found.

Removed and relocated chapters

The introduction as well as chapter 1 FOT basis- and sector data from FOT version 3.x have been left out in version 4.0.

Chapter 3 General production description and chapter 6 Orthophoto from FOT version 3.x can be found in version 4.0 as appendix J in chapter 4.10 and appendix K in chapter 4.11 respectively.

Appendix G from FOT version 3.x concerning a suggestion to integrate selected nature types in the FOT-specification has been left out. However, the possibility of integrating these nature types in the FOT-specification will still be examined.

The FOT specification no longer includes a chapter about 'Changes since the last edition'. It is replaced by this document, which can be found on the webpage of FOTdanmark and in the electronic version of the specification.

Renaming

In order to minimize the risk of misinterpretations some concepts have been renamed (Class is renamed Group, and Characteristic is renamed Attribute). Also, some object type names and attribute names have been renamed.

Object catalogue

New object type descriptions

A new format for object type descriptions has been used. Furthermore the topologic requirements have been removed from each object type and instead general topologic requirements can be found in chapter 2.1. The format for the object type description is described in the introduction to chapter 3.

New object types

New object type	Comes from	Group
BUILDING_BBRPOINT	BUILDING	BUILDINGS
CHURCHYARD	TECHNICAL_AREA	TECHNICAL

RUNWAY	TECHNICAL_AREA	TECHNICAL
CHIMNEY	STRUCTURE	TECHNICAL
FENCE	TOWN FENCE and RURAL FENCE	NATURE

BUILDINGS

According to the last edition, the object type BUILDING could be registered either as a surface or as a point, where the surface represented the geometric shape of the building with or without a BBR-reference (reference to the Building and House Register), and the point represented the position of a building, which is registered in BBR, but not yet registered with a geometric shape. These two representations are now separated, so that the surface representation is named BUILDING and the point representation is named BUILDING_BBRPOINT.

TECHNICAL

Out of regard for the rules for surface topology, two new object types have been separated from TECHNICAL_AREA: CHURCHYARD and RUNWAY.

Out of consideration for the emergency management CHIMNEY has been separated from STRUCTURE in order to be able to easily identify obstructions in the airspace.

NATURE

The use of TOWN FENCE and RURAL FENCE was earlier determined by the outline of the object type TOWN. This has proven to be unpractical, because TOWN was difficult to register photogrammetrically. Since the difference between TOWN FENCE and RURAL FENCE was very small, the two have now been combined into FENCE as a consequence of the decision to register TOWN FENCE by terrain like RURAL FENCE, which was the most essential difference between the two object types.

Deleted object types

Deleted object type	Group
TOWN FENCE	NATURE
RURAL FENCE	NATURE

Renamed object types

Old name	New name
SYSTEMLINIE	SYSTEMLINJE (SYSTEM LINE)
INDUSTRI (INDUSTRY)	ERHVERV (COMMERCIAL AREA)
STATUE/STEN	STATUE_STEN (STATUE_MEMORIAL_STONE)
KRAT/BEVOKSNING	KRAT_BEVOKSNING (SCRUB_VEGETATION)
SAND/KLIT	SAND_KLIT (SAND_DUNE)
VANDLØB (STREAM)	VANDLØBSMIDTE (STREAM CENTRE LINE)
VANDLØBSBRED (STREAM BANK)	VANDLØBSKANT (STREAM EDGE)
BADE/BÅDEBRO	BADE_BÅDEBRO (JETTY_BATHINGBRIDGE)
BY (TOWN)	BYPOLYGON (TOWN POLYGON)

New attributes

Object type	Attribute name
STREAM CENTRE LINE	Start node_ Stream center line
	End node_ Stream center line
	Direction

New attribute values

Object type	Attribute name	New value
ROAD CENTRE LINE	Road class	Road-Trunk
		Road-Branch
		Local road-Primary
		Local road-Secondary
		Local road-Tertiary
ROAD EDGE	Type	Driveway
		Other road

New attributes and attribute values

Object type	New Attribute name	Value
BUILDING_BBRPOINT	Placing_BBRpunkt	Not allocated
RUNWAY	Runway type	Takeoff_Landing
		Taxi runway
		Place
		Not allocated
		Unknown
FENCE	Fence type	Hedge
		Wire
		Other
		Unknown
		Not allocated

Renamed attribute names

Object type	Old name	New name
BUILDING	Measurement point	Measurement point_Building
	Under_Minimum	Under_Minimum_Building
ROAD CENTRE LINE	Start node	Start node_Road
	End node	End node_Road
SYSTEM LINE	Start node	Start node_System
	End node	End node_System
	Road authority	Road authority_System
RAILWAY	Owner	Owner_Railway
	Start node	Start node_Railway
	End node	End node_Railway
	Level	Level_Railway

	Visible	Visible_Railway
ROAD EDGE	Surface	Surface_Road edge
	Surface	Surface_Road edge
TRAIN HALT	Owner	Owner_Train halt
FOREST	Owner	Owner_Forest
	Under_Minimum	Under_Minimum_Forest
HEATH	Under_Minimum	Under_Minimum_Heath
WETLAND	Under_Minimum	Under_Minimum_Wetland
STREAM CENTRE LINE	Owner	Owner_Stream centre line
	Visible	Visible_Stream centre line
STREAM EDGE	Visible	Visible_Stream edge
HISTORICAL AREA	Memorial type	Memorial type_FFO
	Under_Minimum	Under_Minimum_FFO
	Paragraph4	Paragraph4_FFO
	Paragraph4_Ref	Paragraph4_Ref_FFO
HISTORICAL POINT	Memorial type	Memorial type_FFP
	Paragraph4	Paragraph4_FFP
	Paragraph4_Ref	Paragraph4_Ref_FFP

Renamed attribute values

Object type	Attribute	Old value	New value
HABOUR	Harbour type	Bathing/Jettybridge	Docking jetty
ROAD CENTRE LINE	Road class	Road, various	Other road
BOUNDARY LINE	Boundary line type	Skovlinie	Skovlinje (Forest line)

Udgåede attributter og attributværdier

Objekttype	Attribut	Nedlagt værdi
BUILDING	Method_3D	TOP10DK
		3D-roof
ROAD CENTRE LINE	Road class	Europe road
		Primary road
		Secondary road
		Other important road
		Large local road
TECHNICAL_AREAL	Area type	Churchyard
		Runway
BOUNDARY LINE	Boundary line type	Along area
		Along road
RURAL FENCE	Measure point_Nature	Top
		Bottom
		Not allocated
		Unknown

Major changes in object types

BUILDING AREA

Together with TECHNICAL_AREA the object types in BUILDING AREA must completely fill out the area, which they cover. For that reason these object types must have common geometry with each other in areas where they jointly describe a build up area. That is why they are placed in the same group in the description of the relationship of one surface to another. See chapter 2.1.12.6.

ROAD CENTRE LINE + ROAD EDGE

Systems of paths close to each other or close to a road are now registered with their actual shape. This means that many paths close to roads now get their own ROAD CENTRE LINES, and that double paths for two types of traffic and separated by a central reservation also get two ROAD CENTRE LINES.

ROAD CENTRE LINE has new values for the attribute Road class with basis in the proposal from the road sectors SAMKOM-test. The new values are harmonized with the values for the attribute Type, which belongs to ROAD EDGE.

More precise rules stating how long and how important roads have to be in order to be registered with a ROAD CENTRE LINE are implemented.

The rules for registration of path on CHUCHYARD have been changed, so that the rules are the same no matter which AREA TYPE POLYGON the CHURCHYARD is located in.

PARKING

It is now possible to register parking (with road equipment belonging to it) on the roof of BUILDING.

Arrangements in a parking area for guiding cars around are no longer TRAFFIC ISLANDs.

TRAFFIC ISLAND

If a road had a central reservation, this would sometimes consist of ROAD EDGE or TRAFFIC ISLAND depending on how long it was. This was unpractical with regard to the placing of ROAD CENTRE LINE. Short and long central reservations are now always ROAD EDGE. TRAFFIC ISLANDs are only traffic islands in relation to parting of traffic and protection of pedestrians in crossroads.

FENCE

This new object, which is a combination of RURAL FENCE and TOWN FENCE, has an attribute assigned in order to distinguish between different types of fences. The distinction is primarily made outside areas covered by objects from the group BUILDING AREA.

GROYNE

Has new rules for length and width depending on which AREA TYPE POLYGON, they are located in.

STREAM CENTRE LINE

Has three new attributes which enables it to function as a network object with nodes and node numbers in the same way as ROAD CENTRE LINE and RAILWAY

STREAM EDGE

More strict rules for using "invisible" and the rules for using common geometry with other objects, so that this object now runs all the way around a given stream the same way a surface would. It is however still a line object, but by using "Invisible" and "Common geometry" it is possible to easily form a surface from its geometry.

30th of March 2009.