PRODUCT DESCRIPTION

Topography 1M Download, vector

DOCUMENT VERSION: 1.5

Figure 1 Selection from Topography 1M Download, vector.

Innehållsförteckning

1   General description

This document describes how Topography 1M Download, vector is structured at delivery. The contents are well suited for graphical presentation in the scale area 1:500,000 – 1:1,000,000.

The Topography 1M Download Database, vector, was originally the basis for the printed map of Sweden at a scale of 1:1 million, and the information stored in the database has mainly been selected for this purpose.

Topography 1M Download, vector contains administrative units, land cover, lakes, watercourses, built-up areas, roads, railroads, national parks, and text.

1.1   Geographic coverage

Nationwide.

1.2   Coordinate system

Plane: SWEREF 99 TM

Height: RH 2000

For information on what other coordinate systems the product can be delivered in, refer to the document Avgifter och leveransinformation för Lantmäteriets geodata (pdf, in Swedish) about fees and delivery information for Lantmäteriet geodata on Lantmäteriet's website.

2   Quality description

For more information about the various quality parameters used in the product description, refer to HMK Ordlista (pdf, in Swedish) and HMK Geodatakvalitet (pdf, in Swedish).

2.1   Purpose and utility

Topography 1M Download, vector, is part of the information provided by the National Land Survey free of charge as open data.

Topography 1M Download, vector, is well-suited as a background map and for several types of thematic presentations. The content is adjusted to the scale to provide a good cartographic representation.

The vector format allows you to tailor the map to customize the map to your own business needs.

You can:

- add and link your own information to objects on the map.
- integrate map information in your own system.
- display information as required using the layer division.

2.2 Data capture

2.2.1 LINAGE

During the initial data collection, the information was primarily retrieved from the database at a scale of 1:250,000, and adjustments to the information were made to fit the scale of 1:1 million.

2.3 Maintenance

Updating of Topography 1M Download, vector is done through the method event-driven updating method. This means that, through collaboration with other government authorities, municipalities, and organizations, change data is extracted based on objects, changes in geometry or attributes, and date intervals.

The objects updated in this way are nature conservation, railroads, and roads. Error reports that come in to Lantmäteriet are also handled in an event-driven manner.

In addition to the above, some editorial data collection is also conducted at Lantmäteriet for selected objects. Administrative unit and airports are collected annually in this way.

2.3.1 MAINTENANCE FREQUENCY

New vector data is available monthly.

2.4 Data quality

2.4.1 COMPLETENESS

Completeness is related to the selection criteria of each object type. The selection criteria for each object type are described under the heading "Comment" in Chapter 5.

There are certain generalization rules for the information in Topography 1M Download, vector. Cartographic generalization involves simplifying, symbolizing, and relocating geographic information from its original location to create the clearest and most readable map representation possible. Therefore, generalization may result in the geographic information not always being presented to scale and position accuracy, and deviations in completeness may occur when objects are generalized for space reasons. The database's generalizations, text placements, and symbol placements are adapted to a scale of 1:1,000,000.

The quality parameters for completeness are commission and omission. Since there are few measurements of completeness for the included objects in Topography 1M Download, vector, completeness is often described in the product description as very high, high, or low based on experience with the different data collection methods.

2.4.2 LOGICAL CONSISTENCY

For point, line, and polygon object structure the goal is to enable easy topology creation. However, deviations can occur.

Checks are performed to ensure that only valid value ranges and object types are inserted into the database.

2.4.3 THEMATIC ACCURACY

Thematic accuracy varies.

For more information about thematic accuracy, refer to chapter 5.

2.4.4 POSITIONAL UNCERTAINTY

Positional uncertainty describes how well a given position corresponds to the actual position in the terrain.

Due to cartographic editing or generalizations, there may be local deviations up to 1000 metres.

3 Contents of the delivery

3.1 Folder structure at delivery

The files delivered are Geopackage files with containing data, and a JSON-file with a description of the contents of the data file.

The Geopackage files can be ordered from Geotorget.

Other files for styling and symbols are available for download on the [product page](#).

3.2 Delivery format

The information is delivered in the [Geopackage](#) format.

3.3 File sets

The information is delivered in a gpkg file, and a description of the data content is delivered in a json file.

3.4 Layering

In the delivery of Topography 1M Download, vector, the information is divided into different themes, where each theme is delivered in a Geopackage file, containing several layers. The layer names are based on the theme, object, and geometry type.

The layer names begin with the theme and extent before the layer name when imported into software.

Example: **kommunikation_sverige ralstrafik**

The attribute set varies between the different layers and is described in detail in Chapter 5.

4 Layout and plotting of data

4.1 On-screen presentation

The styling of the vector product has been performed in scale 1:500 000 Therefore, this scale can be considered suitable for the on-screen presentation of vector styling.

For styling, a LYR file is provided for ArcGIS/ArcMap and a LYRX file for ArcGIS Pro. In ArcGIS/ArcMap, data should be saved in a geodatabase to achieve full functionality.

For QGIS, a QLR file is provided for styling.

The styling files contain a proposed drawing order for the layers.

Symbols specific to Lantmäteriet's data are provided in a symbol file, LMTopografisymboler.ttf.

The styling file and symbol file are available for download on the product page.

4.2 Installation of fonts

The text in the styling file uses the Window's standard font, Arial.

4.2.1 SYMBOLS

Regardless of which software is being used, the included font in the file LMTopografisymboler.ttf must be installed in the Windows font catalogue (c:\\Windows\Fonts), to obtain a correct symbol presentation.

During symbol styling, the attribute rotation has been used to obtain a correct symbol orientation.

5 Layer description and code list

5.1 Administrative units

Table 1. Included layers in Administrative unit.

Administrative unit	Layer name
Administrative boundary	administrativ_grans
County (area)	lansyta
Municipality (area)	kommunyta

5.1.1 DATA CAPTURE

LINAGE

The creation of the administrative units and boundaries is based on the digitization of the old analogue General Map.

5.1.2 MAINTENANCE FREQUENCY

The update occurs annually in collaboration with government authorities and municipalities.

5.1.3 DATA QUALITY

COMPLETENESS

The administrative units are mapped in full, except for enclaves.

LOGICAL CONSISTENCY

Logical consistency is checked when updated and corrected. Boundary lines are hierarchically coded from national boundaries to municipality boundaries, so that no boundaries overlap.

The order is as follows:

1. National boundary
2. Territorial boundary
3. County boundary
4. Municipality boundary

THEMATIC ACCURACY

The thematic accuracy is very high.

POSITIONAL UNCERTAINTY

When boundaries coincide, it is the boundary that is highest in the hierarchy that is depicted.

5.1.4 ADMINISTRATIVE BOUNDARY

Table 2. Content in Administrative boundary (Layer name: administrativ_grans).

Object type	Object type number	Definition	Description	Comment
Territorial waters boundary	1561	Sweden's territorial waters boundary towards the free ocean or other nation's sea territory	The territorial waters include internal waters and territorial sea. Internal waters include water areas on land and in the sea inside the national border and baselines. The territorial sea extends 12	*The territorial waters boundary at the Finnish border in the Bothnian sea and in Åland's ocean, at the border against Denmark in Öresund as*

Object type	Object type number	Definition	Description	Comment
			nautical miles from the baselines. The baselines are drawn along a low water line along the coast at the level of 0,5 meters. Presented according to the law (2017:1272) about Sweden's sea territory and maritime zones.	well as the border against Norway in Svinesund, is presented as N*ational boundary.*
National boundary	1562	boundary between two nations	The boundary also serves as county, municipality, district, and real property boundary.	
County boundary	1563	boundary for a geographically delimited area that constitutes an administrative unit directly under the state	County and municipality boundaries in public waters are established by The Legal, Financial and Administrative Services Agency (Kammarkollegiet). that constitutes an administrative unit directly subordinate to the state.	Enclaves is not included.
Municipality boundary	1564	boundary for geographically delimited area constituting an administrative unit with its own board and taxation right	Also serves as a register area in the real property register according to the real property register announcement. County and municipality boundaries in public waters are established by The Legal, Financial and Administrative Services Agency (Kammarkollegiet).	Enclaves is not included.
Cultivation boundary	1565	administrative boundary of importance for	Administrative determined boundary between mountain	Completely included.

Object type	Object type number	Definition	Description	Comment
		the practice of reindeer husbandry rights	regions and areas suitable for cultivation in Norrbotten and Västerbotten counties. The cultivation boundary is regulated in the Reindeer Husbandry Act (SFS 1971:437).	

Table 3 Set of attributes for Administrative boundary.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates that the type is Administrative boundary	

5.1.5 COUNTY

Table 4 Contents in County (Layer name: lansyta).

Object type	Object type number	Definition	Description	Comment
County	5112	geographically defined area that constitutes an administrative unit directly subordinate to the state	County and municipal boundaries in public water are determined by the Legal, Financial and Administrative Services Agency.	Enclaves are not included.

Table 5 Set of attributes for County.

Attribute	Type	Length	Definition	Description
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicating the type of administrative bound-ary	
lanskod	Text	2	two-digit code for counties	

5.1.6 MUNICIPALITY

Table 6 Contents in Municipality (Layer name: kommunyta)

Object type	Object type number	Definition	Description	Comment
Municipality	5113	a geograph-ically defined area constitut-ing an adminis-trative unit with its own governance and taxation rights	It also serves as a reg-istration area in the real estate register un-der the Real Property Register Ordinance. County and municipal boundaries in public water are determined by the Legal, Financial and Administrative Services Agency.	Enclaves are not included.

Table 7 Set of attributes for Municipality.

Attribute	Type	Length	Definition	Description
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	

Attribute	Type	Length	Definition	Description
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicating the type of administrative boundary	
kommunkod	Text	2	four-digit code for municipality	

5.2   Facility area

Table 8. Included layers in Facility area theme.

Facility area	Layer name
Airport point	flygplatspunkt

5.2.1   DATA CAPTURE

LINAGE

During the establishment of the database, airports were obtained from the now-discontinued database GSD-Sweden Map 1:700,000.

5.2.2   MAINTENANCE FREQUENCY

Airports are updated annually through editorial collection using information from AIP, the Swedish Transport Agency's publication, and KSAK, the Royal Swedish Aero Club.

5.2.3   DATA QUALITY

COMPLETENESS

The completeness is high.

LOGICAL CONSISTENCY

No requirements for logical consistency.

THEMATIC ACCURACY

The thematic accuracy is considered high.

POSITIONAL UNCERTAINTY

Due to cartographic generalization, the positional uncertainty may vary.

5.2.4 AIRPORT POINT

Table 9. Contents in Airport point (Layer name: flygplatspunkt).

Object type	Object type number	Definition	Description	Comment
Airport symbol	2851	An established location from which air traffic departs		Airports with a paved runway are mapped.

Table 10 Set of attributes for Airport point.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	States type of airport point	Value range described valid values.
iata	Text	3	three-digit identification code for airports	IATA-codes are only available for airports with regular flights, Examples: ANR - Arlanda CPH - Kastrup airport Not used for helicopter pads.
icao	Text	4	four-lettered code of the geographic position of airports, only used by pilots and air traffic control	Examples ESSA - Arlanda (Europe Sweden Stockholm Arlanda) EKCH - Kastrup airport

Attribute	Type	Length	Definition	Description
rotation	Floating point	6.2	indicates orientation for a symbol	Orientation based on horizontal position with anti-clockwise rotation. Orientation is given in degrees (360 degrees in a circle).

5.3 Structures

Table 11. Included layers in the Structures theme.

Structures	Layer name
Building (polygon)	byggnad

5.3.1 DATA CAPTURE

LINAGE

During the establishment, residential areas and churches were obtained from the previous product GSD-General Map. Landmarks and castles were obtained from the discontinued databases GSD-Sweden Map 1:700,000, and lighthouses from GSD-Lighthouses.

5.3.2 MAINTENANCE FREQUENCY

All changes to residential areas are updated according to SCB's urban area update interval.

Power facilities and small settlements are updated through the work method event-driven updates.

Mountain stations are updated in conjunction with mountain information updates.

5.3.3 DATA QUALITY

COMPLETENESS

The completeness is high.

LOGICAL CONSISTENCY

No requirements for logical consistency.

THEMATIC ACCURACY

The thematic accuracy is considered high.

POSITIONAL UNCERTAINTY

Due to cartographic generalization, the positional uncertainty may vary.

5.3.4 BUILDING POINT

Table 12 Contents in Building point (Layer name: byggnadspunkt).

Object type	Object type number	Definition	Description	Comment
Small locality	2053	small locality or small village		
Urban area 2,000–9,999 inhabitants	2054	urban area with 2,000 - 9,999 inhabitants	Urban area according to Statistics Sweden.	
Urban area 200–1999 inhabitants	2055	urban area with 200 - 1999 inhabitants	Urban area according to Statistics Sweden.	
Lighthouse	1051	device for sea traffic that, through light or other signals, provides positional controls or warnings		Historical lighthouses and coastal lighthouses are mapped.
Mountain lodge	2033	tourist facility with buildings for services, activities, and accommodation	Outside of the tourist season, access to an open emergency shelter is available.	STF-owned mountain lodge is mapped.
Nuclear power plant	2035	facility that generates electricity from nuclear power	Also includes decommissioned nuclear power plants.	Completely included. Example: Forsmark
Castle	2038	monumental historical building that is or has been owned by a royal or noble person		

Table 13 Set of attributes for Building point.

Attribute	Type	Length	Definition	Description
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	states type of building point	Range of values for valid values.
rotation	Floating point	6.2	indicates orientation for a symbol	Orientation based on horizontal po-sition with anti-clockwise rota-tion. Orientation is given in de-grees (360 de-grees in a circle).

5.4 Hydrography

Table 14. Layers included in the Hydrography theme.

Hydrography	Layer name
Hydro facility point	hydroanlaggningspunkt
Hydro line	hydrolinje

5.4.1 DATA CAPTURE

LINAGE

During the establishment, the hydrography was obtained from the previous product GSD-General Map.

5.4.2 MAINTENANCE FREQUENCY

The hydrography is not updated.

5.4.3 DATA QUALITY

COMPLETENESS

Minimum length for watercourses is 5 km. Watercourses that end blindly are mapped if they are longer than 10 km.

LOGICAL CONSISTENCY

The watercourses are not coherent and therefore do not form a network.

THEMATIC ACCURACY

The thematic accuracy is high.

POSITIONAL UNCERTAINTY

The hydrography forms the 'skeleton' of Topography 1M Download, vector, and is as geographically accurate as the scale allows.

5.4.4 HYDRO FACILITY POINT

Table 15 Contents in hydro facility point (Layer name: hydroanlaggningspunkt).

Object type	Object type number	Definition	Description	Comment
Dam construction, point	1923	permanent barrier over a water course that dams or controls flow		Dam construction for hydropower plants >200 MW is mapped.

Table 16 Set of attributes for hydro facility point.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	specifies the type of hydro facility point	Range of values for valid values.
rotation	Floating point	6.2	indicates orientation for a symbol	Orientation based on horizontal position with anti-clockwise rotation. Orientation is given in degrees (360 degrees in a circle).

5.4.5 HYDRO LINE

Table 17 Contents in Hydro line (Layer name: hydrolinje).

Object type	Object type number	Definition	Description	Comment
Watercourse	1581	natural or man-made flowing water that is part of a drainage system	Watercourse part of the drainage network and are narrower than 200 m and are 5 km or longer is included.	Water course class 1, 2, 3, 4 and 5 is used in 1:1M, where class 1 is shortest.

Table 18 Attribute set for Hydro line.

Attribute	Type	Length	Definition	Description
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	specifies the type of hydro line	Range of values for valid values.
storleksklass	Text	255	classifies the water-courses with respect to their significance	The length of the watercourse and the size of the drainage basin determines the size class.
kanal	Text	255	man-made water course for ships	Value range: Ja, Nej, Ingen in-formation *(Yes, No, No in-formation).*

Table 19. Value set Water course class.

Value	Description
1	A watercourse that is 5–10 km long and is part of a drainage basin larger than 25 square kilometres.

Value	Description
2	A watercourse that is 10–40 km long and is part of a drainage basin larger than 50 square kilometres.
3	A watercourse that is longer than 40 km long and is part of a drainage basin larger than 100 square kilometres.
4	A watercourse that is longer than 40 km long and is part of a drainage basin larger than 3 000 square kilometres.
5	A watercourse that is longer than 40 km long and is part of a drainage basin larger than 10 000 square kilometres.

5.5 Height

Table 20. Included layers in the theme Height.

Height	Layer name
Contour line	hojdlinje

5.5.1 DATA CAPTURE

Elevation point is an unmarked surveyed point or surveyed water surface and is mapped after a certain selection. The height-determined water surface shall apply to mean water level. In regulated water, the highest and lowest water levels are specified.

Information originally comes from Lantmäteriet's geodetic archive and older map material as well as editorial collection of regulated water from Swedish Meteorological and Hydrological Institute.

5.5.2 MAINTENANCE FREQUENCY

Elevation points are not updated.

5.5.3 DATA QUALITY

COMPLETENESS

Completeness of elevation points follows selection.

LOGICAL CONSISTENCY

Elevation points are stand-alone point objects and have no requirements for logical consistency.

THEMATIC ACCURACY

The thematic accuracy is remarkably high for elevation points.

POSITIONAL UNCERTAINTY

The positional uncertainty for height points varies due to cartographic generalization.

5.5.4 HEIGHT POINT

Table 21 Contents in Height point (Layer name: hojdpunkt).

Object type	Object type number	Definition	Description	Comment
Spot elevation	2411	unmarked elevation point	Elevation point that does not need to be marked, ex. at a junction, on a summit or similar. Presented in whole metres.	An elevation point every 30-50 kilometres is presented.

Table 22 Attribute set for Elevation point.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of elevation point	Value range describes valid values for elevation points.
hojdvarde	Integer	4	height above the sea in metres	
rotation	Floating point	6.2	indicates orientation for a symbol	Orientation based on horizontal position with anti-clockwise rotation. Orientation is given in degrees (360 degrees in a circle).

5.6 Communication

Table 23. Included layers in the theme Communication.

Communication	Layer name
Road line	vaglinje
Ferry route (line)	farjeled
Other road (line)	ovrig_vag
Rail traffic (line)	ralstrafik

5.6.1 DATA CAPTURE

LINAGE

During the establishment, the roads were obtained from the previous product GSD-General Map.

Lantmäteriet updates information about the road network throughout the country through aerial image interpretation and collaboration. Public roads are primarily updated through cooperation with the Swedish Transport Administration and the NVDB (National Road Database). NVDB includes municipal, state, and private roads, as well as ferry routes.

For the Topography 250 Download, Vector product, a general recoding has been done so that the road coding matches the coding in the Swedish Transport Administration's Road Type product.

During the establishment, the railroads were obtained from the previous product GSD-General Map

5.6.2 MAINTENANCE FREQUENCY

Roads and railways are updated through the work method event-driven updating. Changes come from the Swedish Transport Administration.

5.6.3 DATA QUALITY

COMPLETENESS

The completeness of public roads is generally high because Lantmäteriet works in collaboration with the Swedish Transport Administration but varies due to cartographic generalization. A reduction of the roads has occurred due to the scale, more in southern than in northern Sweden.

Ferry routes with road ferries in regular traffic within the country are mapped if operated by the Swedish Transport Administration Ferry service. Other ferry routes are mapped if they connect to the national road network or have year-round traffic with a fixed timetable.

The completeness of railways is generally high but varies due to cartographic generalization.

LOGICAL CONSISTENCY

Lines in a geometric line network are coherent and are divided into connection points (see figure below).

Figure 2. A geometric line network where the roads are divided in the connection points.
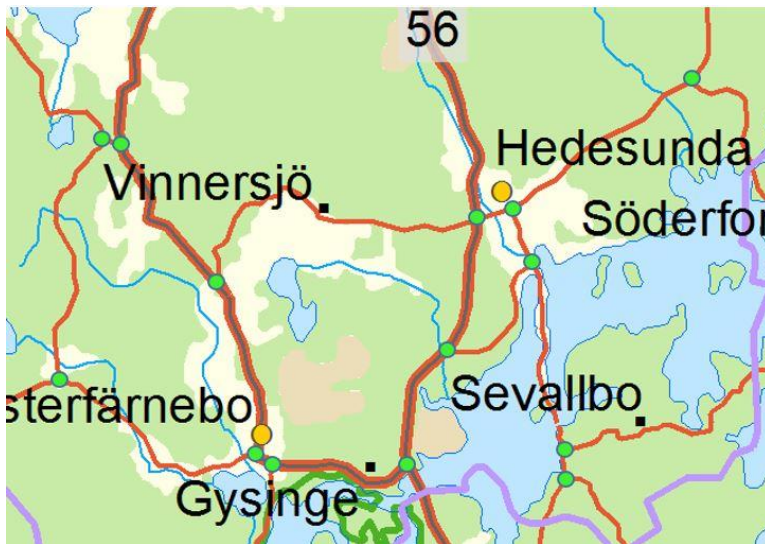
For railways, logical consistency is not checked, but they are mostly coherent.

THEMATIC ACCURACY

Cartographic generalization of roads occurs. This can happen where it becomes too crowded to report the correct road class. A road can never be generalized up to a better road class.

Because the previous coding of roads and the Swedish Transport Administration's coding of roads were not entirely translatable, there are some errors in the coding of the roads.

The thematic accuracy is high for railways.

POSITIONAL UNCERTAINTY

The position uncertainty of the objects varies due to cartographic generalization.

5.6.4   ROAD LINE

Table 24 Contents in Road line (Layer name: vaglinje).

Object type	Object type number	Definition	Description	Comment
Motorway	1801	road that corresponds to		

Object type	Object type number	Definition	Description	Comment
		traffic regulations for motorways		
Two-lane expressway	1802	road that corresponds to the regulations for a two-lane expressway		
Divided road	1803	road where oncoming traffic is separated by a median barrier	Motorways and two-lane expressways are not included. However, other four lane roads and regular roads where traffic directions are separated by a median barrier is included.	
Country road	1804	main road with one lane in each direction separated by a centre line		
Country road, small	1805	state road with road number >499		
Small road	1806	private road, suitable for cars	Included here are state-funded private roads that are allowed to be trafficked as well as private roads outside of built-up areas that the municipality has classed as a good car road and in some cases receive municipal contributions. The road often has a basic standard and can normally be trafficked by car.	

Table 25 Attribute set for Road line.

Object type	Object type number	Definition	Description	Comment
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of road line	Range of values for valid values.
vardvag-nummer	Text	255	complete road number for the main road	Combination of main number, sub-number, and European road. Used for printing in map products. Examples: E4, E20.8, 859, 891.1
gast-vag1nummer	Text	255	complete road number for guest road 1	Combination of main number, sub-number, and European road. Used for printing in map products.
gast-vag2nummer	Text	255	complete road number for guest road 2	Combination of main number, sub-number, and European road. Used for printing in map products.

5.6.5 FERRY ROUTE

Table 26 Contents in Ferry route (Layer name: farjeled)

Object type	Object type number	Definition	Description	Comment
Ferry route	1891	route for ferry traffic	Ferry route with car ferries in regular traffic.	Within the country the following is mapped: - Ferry routes operated by the Swedish Transport Administration's ferry company. - Other ferry routes that connect the state road network. - Other ferry routes with year-round traffic and a fixed timetable. International ferry routes are also included.

Table 27 Attribute set for Ferry route.

Attribute	Type	Length	Definition	Description
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of *Ferry route*.	The object type is always *Ferry*

Attribute	Type	Length	Definition	Description
				route for this object.
destination	Text	50	destination for the *Ferry route*	Examples: Nynäshamn-Visby, Kvarsebo-Skenäs, International examples: Riga (LV), Turku (FI).
vagnummer_nationell	Text	20	road number for domestic ferry routes	

5.6.6   OTHER ROAD

Table 28 Contents in Other road (Layer name: ovrig_vag)

Object type	Object type number	Definition	Description	Comment
Hiking trail	1846	marked trail along a path or road intended for hiking		Larger continuous mountain trails are mapped. Example: Kungsleden.

Table 29 Attribute set for Other roads.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type is Hiking trail	
alternativt_manér	Text	255	states that the organization object should be separately treated	Makes the presentation of hiking trails by

Attribute	Type	Length	Definition	Description
			during cartographic presentation	the side of a road possible. Value quantity: Ja, Nej, Ingen information *(Yes, No, No information)*

5.6.7 RAIL TRAFFIC

Table 30 Contents in Rail traffic (Layer name: ralstrafik).

Object type	Object type number	Definition	Description	Comment
Railway	1861	rail traffic that is part of the national railway network as well as industrial tracks		Presented according to a cartographic selection. Parallel railway tracks are presented with a single line instead of two. Significant generalization on marshalling yards and station areas. Closed railways are mapped. Dismantled railways are not mapped.

Table 31 Attribute set for Rail traffic.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of rail traffic	Range of values for valid values.

Attribute	Type	Length	Definition	Description
bro_och_tun-nel	Text	255	indicates the stretch through a tunnel or the level for roads or railways in relation to another road or rail-way	See value range *Level.*

Table 32 Value set Level

Value	Definition
Överfart *(Overpass)*	road or rail traffic that passes over another object
Underfart *(Underpass)*	road or rail traffic that passing under an-other object
Tunnel *(Tunnel)*	underground road or rail traffic
Överfart och underfart *(Overpass and underpass)*	road or rail traffic that passing over or un-der another object
Ingen information *(No information)*	

5.7 Land cover

Table 33. Layers included in the Land cover theme.

Land cover	Layer name
Land cover	mark
Land cover boundary lines	markkantlinje
Wetlands	sankmark

5.7.1 DATA CAPTURE

LINAGE

Land cover data was retrieved from the previous product GSD-General map.

5.7.2 MAINTENANCE FREQUENCY

Changes to built-up areas are updated according to Statistics Sweden's up-date interval for built-up areas. Otherwise, almost no areas are updated.

5.7.3 DATA QUALITY

COMPLETENESS

Only built-up area is updated.

LOGICAL CONSISTENCY

The topology is checked after each change of the areas and the boundary lines for these are updated.

The layer with land cover forms a topological network, the surfaces must not overlap each other and should not contain holes between them.

Land cover boundary lines must enclose the entire area of the land cover layer. The lines are created via a customized function and are never edited manually.

THEMATIC ACCURACY

The land cover layer presents a schematic representation of land types based on the map's scale range. Smaller areas are generalized away and included in the surrounding areas.

POSITIONAL UNCERTAINTY

Due to cartographic generalization, positional uncertainty may vary.

5.7.4 LAND COVER

Table 34. Contents in Land cover (Layer name: mark)

Object type	Object type number	Definition	Description	Comment
Built-up area	2649	land with residential, industrial, or commercial buildings		Built-up area according to Statistics Sweden (SCB) with 10,000 or more inhabitants.
Open land	2640	land below the treeline, mainly including natural open land, unmanaged and extensively managed meadow	Open land where the height of vegetation is less than approximately 1,5 metres but where individual trees, bushes, and smaller groves higher than 1,5 metres may be included. Also included are former agricultural land, low production pastures, natural meadows and grasslands,	The minimum area mapped is 2 square kilometres. Open land also includes fields and fruit orchards.

Object type	Object type number	Definition	Description	Comment
			plot of lands and gardens with an open character outside built-up areas, undeveloped allotment areas, moorlands, sandy beaches, and shingle fields. Land leased for special activities are also included, such as ski slopes, firing ranges, gravel pits and quarries. Areas by the coast with rock outcrops are also classed as open land.	
Alpine tundra	2644	all land above the tree line, except for surface water and glaciers	Low trees, bushes and smaller groves may occur.	Minimum area for mapping is 2 square kilometers.
Forest	2650	land with coniferous or deciduous trees		Minimum area for mapping is 2 square kilometers.
Sea	2631	waterbody that receives water from waterbodies located on land and that are coherent with other seas	The sea level should be mapped in the normal water level if possible. Water with sparse and/or temporary reeds should be mapped as *Sea*. Dense, persistent belts of reeds should be mapped as *Wetland*.	
Surface water	2654	surface water body	Includes both natural and artificial water.	Minimum area for mapping is 0,8 square kilometers. Watercourses wider than 200 meters are mapped as surface water.
Glacier	2635	permanent mass of snow and ice in high	The data is collected with the support of information from the	Minimum area for mapping is 0,8 square kilometers.

Object type	Object type number	Definition	Description	Comment
		mountains that slowly slide down the mountain slope	Natural Geographic Institution at Stockholm University.	
Unmapped area	2648	area that is not mapped	Includes areas outside the national border.	

Table 35 Attribute sets for Land cover (Layer name: Mark)

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of land cover	Range of values for valid values for land cover.
hojd_over_havet	Text	20	indicates the water surface elevation in meters above sea level	Is only specified for the object types of *Lake* and *Watercourse surface*.
reglerat_vatten	Text	255	indicates whether the water level is regulated	Is only specified for the object types of *Lake* and *Watercourse surface*. It is a mandatory attribute. Example: water surface can vary between e.g., 398 and 412 meters above sea level.

Attribute	Type	Length	Definition	Description
				Range of values: Ja/Nej/Ingen information (Yes/No/No information.)

5.7.5 LAND COVER BOUNDARY LINE

Table 36 Contents in the layer Land cover boundary line (Layer name: markkantlinje.)

Object type	Object type number	Definition	Description	Comment
Boundary line, unmapped area	2611	land cover boundary line for unmapped area	Used to delimit and close surfaces in the land cover layer that are adjacent to unmapped areas.	Mapped completely for areas bordering unmapped areas. Mapped along the national border with Norway. The national border with Finland is mainly formed by boundary rivers (Torneå-, Könkämä-, Muonio rivers). The water surface of the boundary river shall be delimited by a shoreline on the Swedish side and by a boundary line for unmapped area on the Finnish side of the national border.
Shoreline, sea	2612	land cover boundary line between sea and land	Boundary line between sea and built-up areas, open land, or forest.	Against a lake or a watercourse surfaces the land cover boundary line *Closure against sea* is used.
Shoreline, surface water	2625	land cover boundary line between	Boundary line between surface water and	When it is against the sea the land cover boundary line *Closure*

Object type	Object type number	Definition	Description	Comment
		surface water and land	glacier, built-up areas, open land, or forest.	*against the sea* is used.
Closure against the sea	2616	land cover boundary line between sea and lake or watercourse surface	C*losure against the sea* is a constructed, usually straight line used to separate the sea from surface water.	
Glacier boundary	2618	land cover boundary line for glacier		Presented between glaciers and alpine tundra but is replaced with *Shoreline, surface water* against surfaces that are bordered by these
Built-up area boundary	2619	land cover boundary line for grouped built-up areas		Presented for B*uilt-up area* but is replaced with *Shoreline (sea or surface water)* against surfaces bordered by these.
Open land boundary	2622	land cover boundary line for open land or alpine tundra		Presented for open land or alpine tundra but is replaced by *built-up area boundary,* and *shoreline (sea, or surface water)* against surfaces bordered by these.

Table 37 Attribute set Land cover boundary line.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	

Attribute	Type	Length	Definition	Description
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of land cover boundary line	Range of values for valid values.

5.7.6   WETLANDS

Table 38 Contents in wetlands (Layer name: sankmark).

Object type	Object type number	Definition	Description	Comment
Wetland	2653	land that is saturated with water for a large part of the year and usually has the water table near the ground surface or above it	Even very shallow lakes with vegetation and wet meadows are classified as wetlands. Many wetlands are peat-forming.	Minimum area for mapping is approximately 4 square kilometres.

Table 39 Attribute set for wetlands.

Attribute	Type	Length	Definition	Description
objektidenti-tet	Text	36	a globally unique identity for general-ized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of wetland	The object type is *Wetland*.

5.8 Nature conservation

Table 40. Included layers in the Nature conservation theme.

Nature conservation	Layer name
Nature conservation point	naturvardspunkt
Protected nature	skyddadnatur

5.8.1 DATA CAPTURE

LINAGE

During the establishment National Parks were obtained from the previous product GSD-General Map.

5.8.2 MAINTENANCE FREQUENCY

Nature conservation areas are updated twice a year through the work method event-driven updating.

Decision dates and additional information regarding nature conservation objects can be found at the Swedish Environmental Protection Agency, protected nature.

5.8.3 DATA QUALITY

COMPLETENESS

Very high completeness.

LOGICAL CONSISTENCY

The national parks form closed areas individually.

Topology is checked after each change to the surfaces.

THEMATIC ACCURACY

The thematic accuracy is high.

POSITIONAL UNCERTAINTY

The position accuracy of the objects varies due to cartographic generalization.

5.8.4 PROTECTED NATURE

Table 41 Contents in Protected nature (Layer name: skyddadnatur)

Object type	Object type number	Definition	Description	Comment
National Park	5603	protected nature according to *miljöbalken* (SFS 1998:808) 7 Ch 2 § or corresponding older law		National Park is always mapped with a name, for example Abisko national park. Presented completely.

Table 42 Attribute set for Protected nature.

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for generalized objects	
skapad	DateTime	23	time when the object was created	Is created date if no change has been made.
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	indicates the type of protected nature	Range of values for valid values.

5.9 Northern Artic Circle

Table 43. Included layers in the theme Northern Artic Circle

Northern Artic Circle	Layer name
Northern Artic Circle	polcirkeln

5.9.1 DATA CAPTURE

LINAGE

The Artic Circle is a line that represents the Northern Artic Circle. It is mathematically generated.

5.9.2 MAINTENANCE FREQUENCY

The Artic Circle is updated approximately every five years.

5.9.3 DATA QUALITY

COMPLETENESS

The Artic Circle has a high completeness.

LOGICAL CONSISTENCY

The Artic Circle is a stand-alone object and have no requirement of logical consistency.

THEMATIC ACCURACY

The thematic accuracy is remarkably high.

POSITIONAL UNCERTAINTY

The Artic Circle is mathematically calculated.

5.9.4 NORTHERN ARTIC CIRCLE

Table 44. Contents in Northern Artic Circle (Layer name: polcirkeln)

Object type	Object type number	Definition	Description	Comment
Northern Artic circle	1881	southern boundary north of the equator for the area where the sun, at some point, is above the horizon for more than 24 hours in a row	The Artic Circle is presented with its mean circle for a certain year. The Artic Circle moves by approximately 0.47" (arcseconds) per year, which represents approximately 15 metres on the ground.	Presented completely.

Table 45 Attribute set for the Northern Artic Circle

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for exchange objects	
versiongiltigfran	DateTime	23	indicates that a certain version becomes valid and is only used to keep track of versions (does not refer to the validity of information or decision dates)	Specified in the format: 2019-04-26T11:28:03.000

Attribute	Type	Length	Definition	Description
lagesosaker-hetplan	Floating point	6.3	average deviation from the "true" value in plane	The value is described in the unit metre.
lagesosaker-hethojd	Floating point	6.3	average deviation from the "true" value in height	The value is described in the unit metre.
ursprung-lig_organi-sation	Text	255	indicates which process or collaboration form that is responsible for the change	Lantmäteriet
objekttypnr	Integer	4	a unique integer for the object type	
objekttyp	Text	255	Only indicates the object type *Northern Artic circle.*	

5.10 Text

Table 46. Included layers in the theme Text

Text	Layer name
Text line	textlinje
Text point	textpunkt

5.10.1 DATA CAPTURE

LINAGE

The text is retrieved from Lantmäteriet's Place Names Register.

Place names

The collection of place names began in the 1930s. Place names established by Lantmäteriet have also been collected during field work by taking records, where the local population provided information. The name has then been reviewed by place name experts and compared with the records in the name archive in Uppsala at the Institute for Language and Folklore

Since the field work was completed in 2005, collaboration between different authorities and municipalities has become a significant part of today's collection of place names for Lantmäteriet's basic data.

Place names established by the government, county administrative boards, or municipalities are delivered through collaboration agreements. These

place names are reviewed by Lantmäteriet's place name section before publishing.

A selection of the collected place names is presented in Topography 1M Download, vector.

Informational text

Presented based on a list of informational texts that has been changed over time. The purpose of the informational text is to provide the user with additional information about phenomena of general interest.

5.10.2   MAINTENANCE FREQUENCY

The place names are updated according to decisions from Lantmäteriet's place name section. Information text through event-driven updating of topographic objects.

5.10.3   DATA QUALITY

COMPLETENESS

Cartographic generalization is performed; otherwise, place names and information text have high completeness and nationwide coverage. In minority areas, place names are also presented in Finnish, Meänkieli and Sami.

LOGICAL CONSISTENCY

Place names and information text are placed as cartographic texts and are not linked to the objects the text refers to.

THEMATIC ACCURACY

The thematic accuracy is high.

POSITIONAL UNCERTAINTY

Place names and informational text are presented as cartographic texts, the positional uncertainty is not relevant.

5.10.4   TEXT LINE

Table 47 Contents in Text line (Layer name: textlinje)

Text category	Definition	Description	Comment
Administrative unit	name of the division of the kingdom of Sweden into counties and municipalities		
Facility area/Building facility	name of a building facility or facility area	A facility can be a single building, a collection of buildings, or otherwise developed areas intended for	

Text category	Definition	Description	Comment
		production, service, or recreation.	
Settlements	name of smaller settlements or single farms		
Hydrography	name of hydrographic object	Lake, watercourse, wetland, glacier.	
Protected nature	name of an area with long-term legal protection		In cases where the decided name form by the Government or County Administrative Board does not correspond with the established name form by Lantmäteriet, only the information text is presented, e.g., Nature reserve.
Terrain name	name of nature and terrain objects		
Urban area	name of densely built-up area		
Informational text	name that is not a place name text		Reported according to an established list of informational texts.

Table 48 Attribute set for for Text line

Attribute	Type	Length	Definition	Description
objektidentitet	Text	36	a globally unique identity for exchange objects	
skapad	DateTime	23	time when the object was created	Is creation date if no changes have been made.

Attribute	Type	Length	Definition	Description
textstrang	Text	100	specifies the entire text without hyphenations	Text string corresponds to informational text or register text for decided place names.
textkategori	Text	255	grouping is used to control the printing of text	The text category is used to control font style (normal/italic/bold/light) and colour (black/blue/green/...). Text type can also be used to control style.
textstorleksklass	Text	255	specifies which font size to use depending on the scale	In combination with text category, scale, and possibly text type, the printing of text is controlled. Value range is 1–10.
textlage	Integer	1	insertion point for text	Text insertion point (1-9). *Figure 3 Image showing the text insertion point.*
texttyp	Text	255	indicates type of text	Type of text according to value list. N= place name U= information text Text type can be used to control style
textsparrning	Integer	3	distance between letters	Stated in %. 100% is normal distance.
karttext	Text	100	cartographic text	The map text can be hyphenated or abbreviated.
textdelnr	Integer	1	specifies whether the text is hyphenated or not	Hyphenation part 0= not hyphenated otherwise 1–9 for each part string

5.10.5 TEXT POINT

Table 49 Contents in Text point (Layer name: textpunkt)

Text category	Definition	Description	Comment
Administrative unit	name of the division of the kingdom of Sweden into counties and municipalities		
Facility area/Building facility	name of a building facility or facility area	A facility can be a single building, a collection of buildings, or otherwise developed areas intended for production, service, or recreation.	
Settlements	name of smaller settlements or single farms		
Hydrography	name of hydrographic object	Lake, watercourse, wetland, glacier.	
Protected nature	name of an area with long-term legal protection		In cases where the decided name form by the Government or County Administrative Board does not correspond with the established name form by Lantmäteriet, only the information text is presented, e.g., Nature reserve
Terrain name	name of nature and terrain objects		
Urban area	name of densely built-up area		
Informational text	Name that is not a place name text		Presented according to an

Text category	Definition	Description	Comment
			established list of informational texts.

Table 50 Attribute set for Text point.

Attribute	Type	Length	Definition	Description
objektiden-titet	Text	36	a globally unique identity for ex-change objects	
skapad	DateTime	23	time when the ob-ject was created	Is creation date if no changes have been made.
textstrang	Text	100	specifies the entire text without hy-phenations	Text string corre-sponds to informa-tional text or register text for decided place names.
textkategori	Text	255	grouping is used to control the printing of text	The text category is used to control font style (nor-mal/italic/bold/light) and colour (black/blue/green/...). Text type can also be used to control style.
textstorleks-klass	Text	255	specifies which font size to use depend-ing on the scale	In combination with text category, scale, and possibly text type, the printing of text is controlled. Value range is 1–10.
textlage	Integer	1	insertion point for text	Text insertion point (1-9). *Figure 4 Image show-ing the text insertion point.*
texttyp	Text	255	indicates type of text	Type of text accord-ing to value list.

Attribute	Type	Length	Definition	Description
				N= place name U= information text Text type can be used to control style
textsparr-ning	Integer	3	distance between letters	Stated in %. 100% is normal distance.
textriktning	Floating point	6.2	rotation for text	Text rotation is specified in degrees (0.00 – 360.00, increasing anti-clockwise). Decimal number, up to two decimals: -360.00 to 360.00 degrees.
karttext	Text	100	cartographic text	The map text can be hyphenated or abbreviated.
textdelnr	Integer	1	specifies whether the text is hyphenated or not	Hyphenation part 0= not hyphenated otherwise 1–9 for each part string

Table 51 Recommended font size

Font size	Text size class
5.25	1
6.0	2
7.0	3
8.0	4
9.0	5
10.0	6
12.0	7
14.0	8

Font size	Text size class
16.0	9
25.0	10

6 List of change

Table 52 List of change.

Version	Date	Reason and change from previous version
1.5	2024-10-18	Chapter 5.6.7 Comment changed for *Railway*. Chapter 5.7.5 Description changed for *Closure against the sea*.
1.4	2024-07-18	Chapter 5.4.5 Description added, and comment updated for *Watercourse*. Definition and description changed for attribute *storleksklass*. Value set Watercourse class added. Chapter 5.7.5 Definition changed for Open land boundary.
1.3	2024-02-28	Chapter 2 Reference to "Termdatabasen Ekvator" has been removed as it has ceased to exist.
1.2	2023-12-20	Chapter 5.7.4 Description changed for Sea. Chapter 5.7.5 Description changed for Shoreline, sea and Shoreline, surface water.
1.1	2023-11-20	First established English version.