Natural Resources Canada | Ressources naturelles Canada

CanVec

Product Distribution Formats

2019-03-15

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RELEASES HISTORY

Date	Description
2019-03-15	Addition of GeoPackage format
2016-03-14	Original version

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1 OVERVIEW

Geospatial data of CanVec product are available in three distribution formats: GML, Shapefile, FGDB and GeoPackage. This document provides the file names according to distribution formats.

2 PRODUCT IDENTIFICATION

Name:	CanVec
Date:	2016-03-14
Standard:	CanVec - Data product specifications - 2016-03-14
Feature Catalogues:	CanVec - Feature Catalogue - Edition 1.0.0

3 DISTRIBUTION FORMATS IDENTIFICATION

3.1 GML (Geography Markup Language)

Name:	GML
Version:	3.1.1
Date:	February 7, 2004
Specifications:	Geography Markup Language – GML –3.1.1, OpenGIS® Implementation Specifications, OGC Recommendation Paper, 2004-02-07, OGC Document Number 03-105r1 (http://portal.opengeospatial.org/files/?artifact_id=4700)

3.2 Shapefile

Name:	Shapefile
Version:	01
Date:	July 1998
Specifications:	ESRI Shapefile, a Technical Description, on ESRI white paper (July 1998) (http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf)

3.3 FGDB (File Geodatabase)

Name:	ESRI™ Geodatabase (File-based)
Version:	Unknown (Outside the public domain)
Date:	Not available. This format was launched with the ArcGIS (ESRI™) version 9.2 software. The ArcGIS (ESRI™) version 10.1 is used to produce the FGDB files.
Specifications:	Not applicable (Outside the public domain)

3.4 GeoPackage

Name:	GeoPackage Encoding Standard
Version:	1.2.1
Date:	2018-09-06
Specifications:	GeoPackage–1.2.1, OpenGIS® Implementation Specifications, OGCRecommendation Paper, 2018-09-06, OGC Document Number 12-128r15 (http://www.geopackage.org/spec121/)

4 DISTRIBUTION FILES NAMING

4.1 Shapefile format file naming

4.1.1 A multi-scale product based on a fixed clipping area defined by provincial/territorial and national outlines.

The prepackaged product in Shapefile format contains multiple combinations of entity classes and geometric representations. The name of the files is described as follow:

<class name>_<geometry code>.<extension>

- *<class name>* = Name of the Entity Class. A definition of the entity class is available in the Feature Catalogue.
- *<geometry code>* = Code indicating the geometric representation of the entity. Possible values are: 0 (point), 1 (line), and 2 (area).
- *<extension>* = Extension of the file name

For each combination of entity class and geometric representation, there are 7 files including 2 optional index files:

- the main geometry file (.shp)
- an attribute file (.dbf for dBASE® file)
- a spatial index file (.shx) containing offset (relative position) for each record of the main geometry file
- a projection file (.prj) storing information about the reference system used and the parameters of the cartographic projection
- a character encoding file (.cpg) describing a set of characters for displaying text in the Shapefile

2 optional index files:

The two optional index files (.sbn and .sbx) are included when the size of the main geometry file is greater than 2 giga-bytes, see section 6 for more details.

Examples:

- contour_1.shp Entity Contour of Feature Elevation theme with a line geometry

- wooded_area_2.shp Entity Wooded area of theme Feature Land with an area geometry

4.1.2 According to a customized coverage from the Geospatial Data Extraction tool

The product generated by the Geospatial Data Extraction tool in Shapefile format contains as many files as possible combinations of entity classes, geometric representations, and file types. All these files are grouped inside of a directory that has the following name structure:

canvec_<*YYMMDD*>_<*hhmmss*>_*shp*

- canvec = Identification of the product
- < *YYMMDD* > = Year, month, and day of the extraction
- <*hhmmss*> = Hour, minute, and second of the extraction time, Eastern Time
- _shp = Format

Example of a directory created on January 4, 2016 at 13:55:37: canvec_160104_135537_shp

Inside this directory, the files have the following name structure:

<*class name*>_<*geometry code*>.<*extension*>

- <*class name*> = Name of the Entity Class. A definition of the entity class is available in the Feature Catalogue.
- <*geometry code*> = Code indicating the geometric representation of the entity. Possible values are: 0 (point), 1 (line), and 2 (area).
- <*extension*> = Extension of the file name

For each combination of entity class and geometric representation, there are 5 files:

- the main geometry file (.shp)
- an attribute file (.dbf for dBASE® file)
- a spatial index file (.shx) containing offset (relative position) for each records of main geometry file
- a projection file (.prj) storing information about the reference system used and the parameters of the cartographic projection
- a character encoding file (.cpg) describing a set of characters for displaying text in Shapefile and also helps localize maps for specific languages

Example: see section 4.1.1

4.2 FGDB format file naming

4.2.1 A multi-scale product based on a fixed clipping area defined by provincial/territorial and national outlines

The prepackaged product in FGDB format is distributed by theme. The name of the FGDB file is described as follow:

canvec_<*scale*>_<*clipping area*>_<*theme*>.<*extension*>

- canvec = Identification of the product
- <*scale*> = Scale identification. The possible values are: 50k, 250k, 1M, 5M, and 15M.
- <*clipping area*> = Clipping area identification. The possible values are: PE, NL, NS, NB, QC, ON, MB, SK, AB, BC, NU, NT, YK, and CA representing provincial/territorial acronyms and Canada (CA).
- <*theme*> = Theme identification. The possible values are: Transport (Transport Feature), Admin (Administrative Features), Hydro (Hydro Features), Land (Land Features), ManMade (Man-Made Features), Elevation (Elevation Features), Res_MGT (Resource Management Features) and Toponymy (Toponymic Features).
- <*extension*> = Extension of the file name

Example: canvec_50K_QC_Hydro.gdb

4.2.2 According to a customized coverage from the Geospatial Data Extraction tool

The product generated in FGDB format by the Geospatial Data Extraction tool contains one directory that has the following name structure:

canvec_<*YYMMDD*>_<*hhmmss*>_fgdb

- canvec = Identification of the product
- < *YYYYMMDD*> = Year, month, and day of the extraction
- <*hhmmss*> = Hour, minute, and second of the extraction time, Eastern Time
- _fgdb = Format

Example of a directory created on January 4, 2016 at 13:55:37: canvec_160104_135537_fgdb

This directory contains one file that has this name structure:

canvec_<*YYMMDD*>_<*hhmmss*>.gdb

- canvec = Identification of the product
- < *YYYYMMDD*> = Year, month, and day of the extraction
- <*hhmmss*> = Hour, minute, and second of the extraction time, Eastern Time
- <extension> = Extension of file name

Example of a file extracted on January 4, 2016 at 13:55:37: canvec_160104_135537.gdb

Note: Attributes that use a value domain are composed of a code, an English label (*attribute name*_en) and a French label (*attribute name*_fr). For an FGDB file opened in ArcMap, only codes are displayed in the attribute table. To see the labels, the option « Display coded value domain and subtype descriptions » (Customize→ ArcMap Options→ Tables tab) must be activated before opening the layer. They will then be displayed as shown in the table below.

Example:

Catalogue – Water Linear Flow feature 3 attributes For the nature of Water Linear Flow	flow_qualifier flow_qualifier_en flow_qualifier_fr
Option on	115: Inferred / Inféré (code: English label / French label)
Option off	115
Request	flow_qualifier = 115

4.3 GeoPackage format file naming

4.3.1 According to a customized coverage from the Geospatial Data Extraction tool

The product generated by the Geospatial Data Extraction tool in GeoPackage format contains one directory that has the following name structure:

canvec_<*YYMMDD*>_< *JobID* >.gpkg

- canvec = Identification of the product
- < *YYMMDD* > = Year, month, and day of the extraction
- <*JobID*> = Identification number of the order
- gpkg = Format

Example of a file extracted on March 21, 2019 which Job ID is 76093: canvec_190321_76093.gpkg

Inside this directory, the files have the following name structure:

<class name>_<geometry code>

- *<class name>* = Name of the Entity Class. A definition of the entity class is available in the Feature Catalogue.
- *<geometry code>* = Code indicating the geometric representation of the entity. Possible values are: 0 (point), 1 (line), and 2 (area).

We will obtain as many files as possible combinations of entity classes and geometric representations. All these files are grouped inside of a single directory.

4.4 Metadata file

A single bilingual (English-French) metadata file in XML format is distributed with each CanVec dataset. This metadata file complies with the North American Profile (NAP) of the ISO 19115 standards.

4.4.1 A multi-scale product based on a fixed clipping area defined by provincial/territorial and national outlines

The name of the metadata is described as follow:

canvec_<*theme*>_pna.<*extension*>

- canvec = Identification of the product
- <*theme*> = Theme identification. The possible values are: Transport (Transport Feature), Admin (Administrative Features), Hydro (Hydro Features), Land (Land Features), ManMade (Man-Made Features), Elevation (Elevation Features), Res_MGT (Resource Management Features), and Toponymy (Toponymic Features).
- pna = North American Profile of ISO 19115
- <*extension*> = Extension of the file name (xml)

Exemple: canvec_50K_QC_Hydro_pna.xml

Note: There is no information on the years of validity date and planimetric accuracy ranges. The validity date and planimetric accuracy are found in the attribute of each entity occurrence.

4.4.2 According to a customized coverage from the Geospatial Data Extraction tool

The dataset metadata produces by the Geospatial Data Extraction tool is in the XML format according to North American Profile (NAP) national standards. The name of the metadata is described as follow:

canvec_<*YYMMDD*>_<*hhmmss*>_pna. <*extension*>

- canvec = Identification of the product
- <*hhmmss*> = Hour, minute, and second of the extraction time, Eastern Time
- <*YYMMDD*> = Year, month, and day of the extraction
- pna = North American Profile of ISO 19115
- <*extension*> = Extension of file name (xml)

Example of a metadata file created on January 4, 2016 at 13:55:37: canvec_160104_135537_pna.xml

4.5 Compress file naming

To facilitate downloading, the files are distributed in a compressed format. The following subsections describe the naming convention of these compressed files.

4.5.1 A multi-scale product based on a fixed clipping area defined by provincial/territorial and national outlines

canvec_<*scale*>_<*clipping area*>_<*theme*>_<*format*>.<*extension*>

- canvec = Identification of the product
- <*scale*> = Scale identification. The possible values are: 50k, 250k, 1M, 5M, and 15M.
- <*clipping area*> = Clipping area identification. The possible values are: PE, NL, NS, NB, QC, ON, MB, SK, AB, BC, NU, NT, YK, and CA representing provincial/territorial acronyms and Canada (CA).
- <*theme*> = Theme identification. The possible values are: Transport (Transport Feature), Admin (Administrative Features), Hydro (Hydro Features), Land (Land Features), ManMade (Man-Made Features), Elevation (Elevation Features), Res_MGT (Resource Management Features), and Toponymy (Toponymic Features).
- <*format*> = Format Identification. The possible values are: fgdb (file geodatabase) or shp (Shapefile).
- <*extension*> = Extension of the file name (zip)

Exemple: canvec_50K_QC_Hydro_fgdb.zip

4.5.2 According to a customized coverage from the Geospatial Data Extraction tool

Entities of the product delivered through the Geospatial Data Extraction tool are grouped in a compressed format file. The file name is described as follow:

<*YYMMDD*>_<*hhmmss*>_<*identification*>.<*extension*>

- <*YYMMDD*> = Year, month, and day of the extraction
- <*hhmmss*> = Hour, minute, and second of the extraction time, Eastern Time
- <*identification*>= Random two characters identification to ensure the uniqueness of each file generated by the Geospatial Data Extraction tool.
- <*extension*> = Extension of file name

Example of a file extracted on January 4, 2016 at 13:55:37: canvec_160104_135537_xd.zip

5 ATTRIBUTES IDENTIFICATION

The Feature Catalogues describe all entities and their attributes of the CanVec product.

Link to CanVec Feature Catalogues

Note that attribute names distributed in Shapefile format have been modified to accommodate the limitations of this format. Indeed, the Shapefile does not allow attribute names longer than 10 characters. A correspondence file, providing a link between the attributes of the Feature Catalogue and the attributes of a Shapefile, is available for download.

Link to the correspondence file

6 SHAPEFILE FORMAT CLIPPING AREA INDEX

Files in Shapefile format are limited to a 2 gigabyte size. The use of large clipping areas (province, territory or Canada) results in the creation of multiple files in order to not exceed the maximum allowable size of the format. A suffix made up of a sequential number is added at the end of each file name to uniquely identify them. When this policy is applied, an additional class containing the geometries of the clipping limits used is added to the file. The name of this class is *tile_index_2* and it contains two attributes: *class* attribute containing the affected class by the tiling operation and *tile_id* attribute containing the clipping unit number for that class.