

ISO 19131 Grain Elevators in Canada - Data Product Specifications

Revision: A

Data product specifications: Grain Elevators in Canada

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Data product specifications: Grain Elevators in Canada

1. Overview

1.1. Informal description

1.2. Data product specification - metadata

This section provides metadata about the creation of this data product specification

Data product specification – title:	Grain Elevators in Canada
Data product specification - reference date:	June 12, 2014
Data product specification - responsible party:	Agri-Geomatics
Data product specification – language:	English,French
Data product specification - topic category:	farming

1.3. Terms and definitions

- Feature attribute
characteristic of a feature
- Class
description of a set of objects that share the same attributes, operations, methods, relationships, and semantics [UML Semantics]
NOTE: A class does not always have an associated geometry (e.g. the metadata class).
- Feature
abstraction of real world phenomena
- Object
entity with a well-defined boundary and identity that encapsulates state and behaviour [UML Semantics]
NOTE: An object is an instance of a class.
- Package
grouping of a set of classes, relationships, and even other packages with a view to organizing the model into more abstract structures

1.4. Abbreviations

AAFC	Agriculture and Agri-Food Canada
CGC	Canadian Grain Commission
CN	Canadian National Railway
CP	Canadian Pacific Railway

2. SPECIFICATION SCOPE

This data specification has only one scope, the general scope.

NOTE: The term 'specification scope' originates from the International Standard ISO19131. 'Specification scope' does not express the purpose for the creation of a data specification or the potential use of data, but identifies partitions of the data specification where specific requirements apply.

3. DATA PRODUCT IDENTIFICATION

3.1. Data product identification

3.1.1. Grain Elevators in Canada - 2013

Title	Grain Elevators in Canada - 2013
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2013 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located as much as possible to an actual location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture,
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, License, Capacity, Unique Key, Car Spots

3.1.2. Grain Elevators in Canada - 2014

Title	Grain Elevators in Canada - 2014
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2014 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located as much as possible to an actual location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture,
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, Elevator type,,Capacity, Unique Key, Car Spots

3.1.3. Grain Elevators in Canada - 2015

Title	Grain Elevators in Canada - 2015
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2015 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located as much as possible to an actual location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture,
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, Elevator type, Capacity, Unique Key, Car Spots

3.1.4. Grain Elevators in Canada – 2016

Title	Grain Elevators in Canada - 2016
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2016 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located as much as possible to an actual location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, Consolidated Licensee, Elevator type, Capacity, Unique Key, Car Spots

3.1.5. Grain Elevators in Canada - 2017

Title	Grain Elevators in Canada - 2017
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2017 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located as much as possible to an actual location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture,
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, Consolidated Licensee, Elevator type, Capacity, Unique Key, Car Spots

3.1.6. Grain Elevators in Canada - 2018

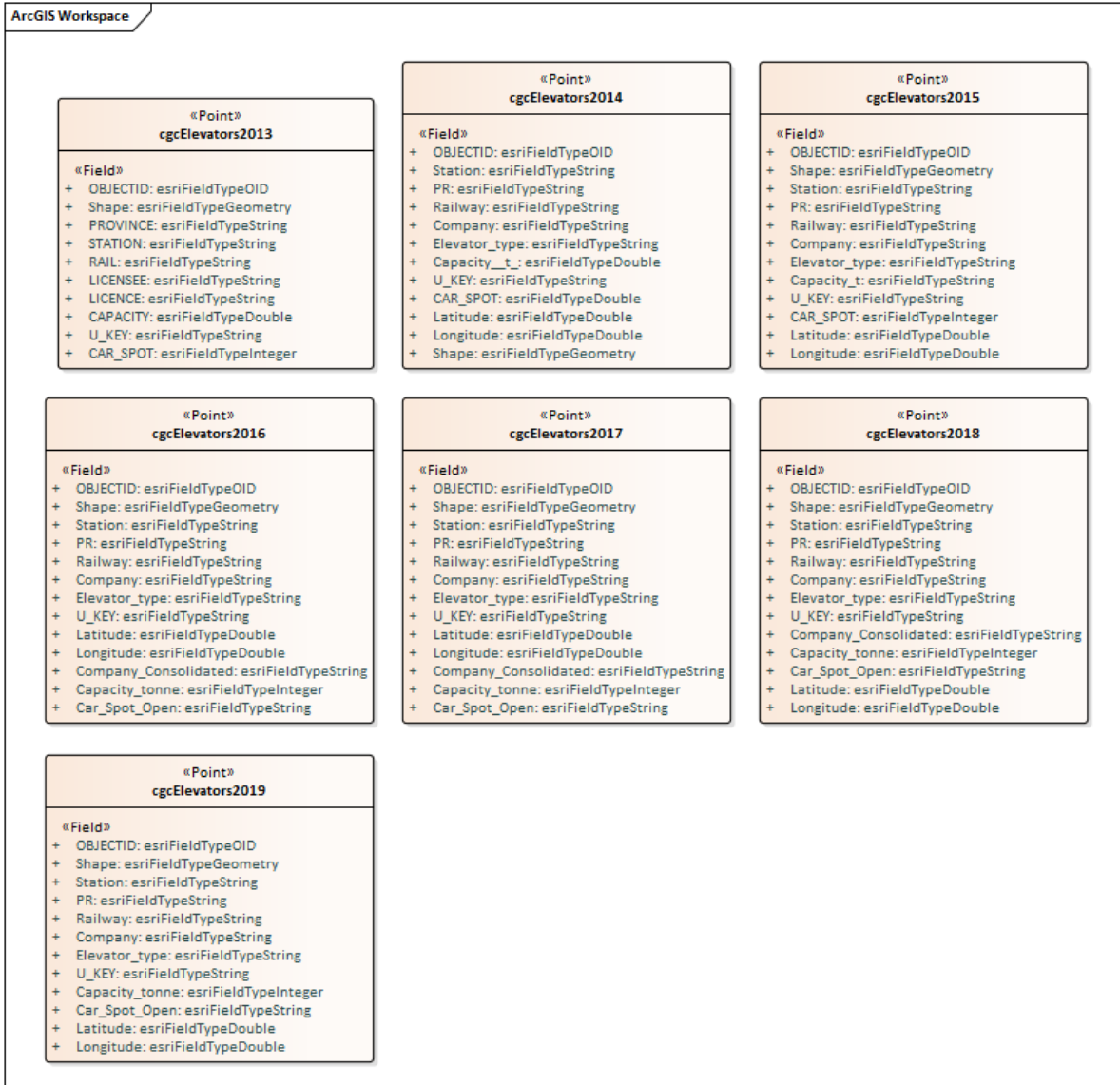
Title	Grain Elevators in Canada - 2018
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2018 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located as much as possible to an actual location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture,
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, Consolidated Licensee, Elevator type, Capacity, Unique Key, Car Spots

3.1.7. Grain Elevators in Canada - 2019

Title	Grain Elevators in Canada - 2019
Alternate Title	
Abstract	<p>The Grain Elevators in Canada – 2019 dataset maps the list of grain elevators in Canada as provided by the Canadian Grain Commission (CGC). The elevators have been located if possible to a location rather than generalizing to the station name centroid. Additionally car spot information from CN, CP and the grain companies has been added where this has been published.</p> <p>This dataset attempts to provide a temporal and geographical extent of the grain elevators in Canada.</p>
Purpose	
Topic Category	farming
Spatial Representation Type	vector
Spatial Resolution	
Geographic Description	Canada
Supplemental Information	
Constraints	Open Government Licence - Canada (http://data.gc.ca/eng/open-government-licence-canada)
Keywords	Grain elevators, Grains, Railways, Agriculture,
Scope Identification	dataset
Feature Attribute Names	Province Name, Station Name, Railway, Licensee, Elevator type, Capacity, Unique Key, Car Spots

4. DATA CONTENT AND STRUCTURE

4.1. Feature-based application schema



4.2. Feature catalogue – Grain Elevators in Canada

Title	Grain Elevators in Canada
Scope	
Version Number	1.0
Version Date	June 12, 2014
Producer	Agriculture and Agri-food Canada

System-generated attributes (for example, OBJECTID, Shape, Shape Length and Area) are not defined in the feature catalog.

4.2.1. Feature attributes

4.2.1.1. Station Name (Station)

Name	Station Name		
Definition	The name of the station the elevator is closest located to.		
Aliases			
Producer	CGC		
Value Data Type	character		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.2. Province Name (PR)

Name	Province Name		
Definition	The Province abbreviation that the elevator is located in.		
Aliases			
Producer	CGC		
Value Data Type	character		
Value Domain Type	1 (enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition
	Alberta	AB	
	British Columbia	BC	
	Manitoba	MB	
	Nova Scotia	NS	
	Ontario	ON	
	Quebec	QC	
	Saskatchewan	SK	

4.2.1.3. Railway (Railway)

Name	Railway		
Definition	Railway line the elevator is located on.		
Aliases			
Producer	CGC		
Value Data Type	character		
Value Domain Type	1 (enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition
	Canadian National	CN	
	Canadian National 2	CN2	
	Canadian Pacific	CP	
	Canadian Pacific 2	CP2	
	Not on Railway	NO	
	Other	OTH	

4.2.1.4. Licensee (Company)

Name	Licensee		
Definition	Name of the grain company that owns the elevator.		
Aliases			
Producer	CGC		
Value Data Type	character		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.5. Elevator Type (Elevator_type)

Name	Elevator type		
Definition	The type of grain elevator.		
Aliases			
Producer	CGC		
Value Data Type	character		
Value Domain Type	1 (enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition
	Primary	Pri.	
	Processing	Proc.	
	Terminal	Term.	

4.2.1.6. Unique Key (U_KEY)

Name	Unique Key		
Definition	Unique identifier of the station the elevator is closest located to.		
Aliases			
Producer	CGC; Canadian Geographical Names Database (CGNDB) http://www4.rncan.gc.ca/search-place-names/search?lang=en		
Value Data Type	character		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.7. Licensee Consolidated (Company_Consolidated)

Name	Licensee		
Definition	Consolidated name of the grain company that owns the elevator.		
Aliases			
Producer	AAFC		
Value Data Type	character		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.8. Capacity (Capacity_tonne)

Name	Capacity		
Definition	The number of tonnes the elevator can store.		
Aliases			
Producer	CGC		
Value Data Type	integer		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.9. Car Spots (Car_Spot_Open)

Name	Car Spots		
Definition	Number of grain cars the elevator can load/unload.		
Aliases			
Producer	AAFC		
Value Data Type	integer		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

5. REFERENCE SYSTEMS

5.1. Spatial reference system

Horizontal coordinate reference system: WGS 84

Map projection: Web Mercator Auxiliary Sphere; EPSG: 3857; Version 8.1.4

5.2. Temporal reference system

Gregorian calendar

6. DATA QUALITY

6.1. Completeness

DQ_Scope	All items match CGC original table
DQ_Element	1 - Completeness
DQ_Subelement	1 - Commission
DQ_Measure	
DQ_MeasureDesc	Pass-Fail
DQ_MeasureID	
DQ_EvalMethod	
DQ_EvalMethodType	2 - external
DQ_EvalMethodDesc	Count items in dataset against count of items in CGC list.
DQ_Result	
DQ_ValueType	1 - Boolean
DQ_Value	TRUE
DQ_ValueUnit	NA
DQ_Date	10-Apr-20
DQ_ConformanceLevel	Zero commissions in dataset
Dataset Parameters	Approximately 432 records in dataset.
Quality Result Meaning	Dataset passes. Number of records matches CGC source.

6.2. Logical consistency

Measure not used at this time

6.3. Positional accuracy

DQ_Scope	
DQ_Element	3 - Positional Accuracy
DQ_Subelement	2 - Relative or internal Accuracy
DQ_Measure	
DQ_MeasureDesc	Percentage of items not visually confirmed or needed adjustment using available imagery (e.g. ArcGIS Imagery, Sentinel 2, Google map/streetview).
DQ_MeasureID	
DQ_EvalMethod	
DQ_EvalMethodType	2 - external
DQ_EvalMethodDesc	Subset sample of records extracted from the full records using the 'subset features' tool in the ArcGIS Geostatistical Analyst extension. Approximately 10% subset of full records in the sample. Each sample elevator record is visually identified using best available imagery. To obtain the percentage, count the number of elevators that were adjusted or could not be visually verified, then divide by the number of records in the sample and multiply by 100.
DQ_Result	
DQ_ValueType	4 - Percent
DQ_Value	16.0 appx.
DQ_ValueUnit	Percentage
DQ_Date	16-Jun-20
DQ_ConformanceLevel	Not specified
Dataset Parameters	Approximately 43 records in sample dataset.
Quality Result Meaning	No conformance level specified, only the percentage of records not conforming reported.

6.4. Temporal accuracy

Measure not used at this time

6.5. Thematic accuracy

Measure not used at this time

6.6. Lineage statement

Lineage Statement	This dataset is a georeferenced version of the tabular data released by the Canadian Grain Commission.
Scope	dataset

7. DATA CAPTURE

This dataset was created from the Canadian Grain Commission list found at <http://www.grainscanada.gc.ca/wa-aw/geic-sgc/search-recherche-eng.asp>. This list was imported into ArcGIS 10.x and geolocated to the nearest Station name. Once an initial location was found a more precise location was determined using grain company descriptions of the location of the elevator, the published physical address and google maps. Google street view was used where available to verify grain company names. Additionally, the ArcGIS imagery as well as Sentinel imagery was used to assist with geolocating.

The 2016 CGC elevators were updated using the information provided in the PDF report for the CGC Elevators as of April 1, 2016. The report can be located at: <https://www.grainscanada.gc.ca/statistics-statistiques/geic-sgc/2016-04-01.pdf>

The 2017 CGC elevators were updated using the information provided in the PDF report for the CGC Elevators as of November 1, 2017.

The 2018 CGC elevators were updated using the information provided from the 'Grain Elevator Data' online research tool for the CGC Elevators as of February 1, 2019. The list can be found at: <https://www.grainscanada.gc.ca/application/GEICOWeb/GEICOSearch-en>. This information date was used as a proxy for the end of 2018 snapshot.

The 2019 CGC elevators were updated using the information provided from the 'Grain Elevator Data' online research tool for the CGC Elevators as of August 1, 2019. The list can be found and queried from the tool at: <https://www.grainscanada.gc.ca/application/GEICOWeb/GEICOSearch-en>. The attribute 'Company_Consolidated' was removed from this version of the dataset. The attribute field was removed in order to facilitate data maintenance on a single company (i.e.'Company') attribute.

The Car Spot attribute was mined from CN and CP reports as well as grain company facility listings.

8. DATA MAINTENANCE

The Canadian Grain Commission updates this dataset during the year and AAFC will maintain it accordingly. As well inaccurately located elevators will be fixed as they are identified and more accurate information is presented.

9. PORTRAYAL

Not applicable.

10. DATA PRODUCT DELIVERY

Delivery medium information/Informations relatives au support de livraison:
units of delivery/Unités de livraison: package
medium name/nom du support: online via HTTP, online via direct access

Delivery format information/Informations relatives au format de livraison:

File Geodatabase

format name: Esri Geodatabase (File-based)
format version: 10.4
specification: A collection of various types of GIS datasets held in a file system folder.
(<http://arcgis.com>)
languages: eng
character set: utf8

GeoJSON format name: GeoJSON specification: the GeoJSON Format August 2016
(<https://tools.ietf.org/html/rfc7946>)

GeoJSON

format name: GeoJSON
specification: the GeoJSON Format August 2016 (<https://tools.ietf.org/html/rfc7946>)

11. METADATA

The metadata requirements follow the Government of Canada's Treasury Board Standard on Geospatial Data (ISO 19115).