



## **National Road Network**

### **Product Distribution Formats Segmented View**

**Edition 2.0**

**2007-05-31**

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**REVISION HISTORY**

Date	Edition	Description
2003-01-10	1.0	Original edition (was included in Appendix A of document <i>National Road Network, Canada, Level 1: Data Product Specifications – Edition 1.0</i> )
2007-05-31	2.0	<p>Addition of KML format</p> <p>Updates for NRN edition 2.0</p> <ul style="list-style-type: none"> <li>- Reformatting of the document and review of some definitions.</li> <li>- Addition of classes for addressing and associated attributes: <ul style="list-style-type: none"> <li>• Address Range;</li> <li>• Street Place Name;</li> <li>• Alternate Name Link.</li> </ul> </li> <li>- Addition of addressing attributes on the Road Segment feature: <ul style="list-style-type: none"> <li>• Address Range NID;</li> <li>• Address Range Digitizing Direction Flag;</li> <li>• Official Place Name;</li> <li>• Official Street Name Concatenated;</li> <li>• First House Number;</li> <li>• Last House Number.</li> </ul> </li> <li>- Renaming of attributes: <ul style="list-style-type: none"> <li>• National Road Class renamed Functional Road Class;</li> <li>• Acquisition Provider renamed Provider;</li> <li>• Network Linear Element NID renamed Road Element NID;</li> <li>• Obstruction Type renamed Blocked Passage Type.</li> </ul> </li> <li>- Replacement of the attribute Acquisition or Revision Date by attributes Creation Date and Revision Date.</li> <li>- Addition of an object metadata attribute: Coverage.</li> </ul>

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## 1 OVERVIEW

The following entities are part of the National Road Network (NRN) Segmented view: *Address Range, Alternate Name Link, Blocked Passage, Ferry Connection Segment, Junction, Road Segment, Street and Place Names* and *Toll Point*.

The product is available in the following output file formats: GML (Geography Markup Language), KML (Keyhole Markup Language) SHAPE (ESRI™).

**NOTE:** Data files distributed in KML format only contain the entity *Road Segment* and a subset of attributes.

## 2 PRODUCT IDENTIFICATION

Name: National Road Network  
Version: 2.0  
Date: 2007-05-31  
Standard: National Road Network: Data Product Specifications, Edition 2.0, 2007-05-31  
Feature catalogue: National Road Network: Feature Catalogue, Edition 2.0, 2007-05-31

## 3 DISTRIBUTION FORMATS IDENTIFICATION

### 3.1 GML – Geography Markup Language

Name: GML – Geography Markup Language  
Version: 2.1.2  
Date: 2002-09-17  
Specifications: Geography Markup Language – GML – 2.1.2, OpenGIS®Implementation Specifications, OGC Document Number 02-069 ([http://portal.opengeospatial.org/files/?artifact\\_id=11339](http://portal.opengeospatial.org/files/?artifact_id=11339))

### 3.2 KML – Keyhole Markup Language

Name: KML – Keyhole Markup Language  
Version: 2.1  
Date: 2007-05-02  
Specifications: Open Geospatial Consortium Inc., KML 2.1 Reference – An OGC Best Practice, Version 0.0.9, 2007-05-02, Reference number of this OGC® project document: OGC 07-039r1 (<http://www.opengeospatial.org/standards/bp>)  
  
KML format specifications are available on Google™ Earth web site ([http://www.keyhole.com/kml/kml\\_doc.html](http://www.keyhole.com/kml/kml_doc.html)).

### 3.3 Shape – ESRI™

Name: Shape  
Version: 01

Date: July 1998  
 Specifications: ESRI Shapefile Technical Description, an ESRI White Paper, July 1998  
<http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf>

## 4 DISTRIBUTION FILES IDENTIFICATION

### 4.1 GML file names

NRN entities distributed in GML format are grouped into separate dataset files. One file contains the geometrical entities and associated basic attributes, another file contains the addressing attributes tables, and finally up to four change management files (one for each type of content) are available. The name of a GML file is structured accordingly:

NRN\_<IDENTIFIER>\_<edition>\_<version>\_<CONTENT>[\_<MODIFICATION>].gml

- NRN = Abbreviated title of the product.
- <IDENTIFIER> = Code of a province or a territory corresponding to the dataset location. Possible codes are: AB, BC, MB, ON, NB, NL, NS, NT, NU, PE, QC, SK, YT.
- <edition> = Dataset edition number.
- <version> = Dataset version number.
- <CONTENT> = Dataset content identifier. Possible values are: GEOM (Geometrical entities and basic attributes), ADDR (Address attributes tables).
- [<MODIFICATION>] = [] = Optional. Type of modification applied to the dataset entities and attributes in comparison to previous edition. Possible values are identified in section 4.5.2.
- .gml = File name extension.

Examples:

- NRN\_AB\_4\_0\_GEOM.gml (Geometrical entities and basic attributes of the dataset of Alberta, edition 4, version 0).
- NRN\_AB\_4\_0\_ADDR.gml (Tables of addressing attributes of the dataset of Alberta, edition 4, version 0).
- NRN\_AB\_4\_0\_GEOM\_ADDED.gml (Geometrical entities and/or basic attributes added in the dataset of Alberta, edition 4, version 0).
- NRN\_AB\_4\_0\_ADDR\_ADDED.gml (Tables of the addressing attributes added in the dataset of Alberta, edition 4, version 0).

An XML schema (XSD file) is also provided along with a GML data file. This file defines, in a structured manner, the type of content, the syntax and the semantic of GML documents. The name of this file is NRN\_<IDENTIFIER>\_<edition>\_<version>\_<CONTENT>[\_<MODIFICATION>].xsd and a reference is recorded within the GML file.

## 4.2 KML file name

The entity *Road Segment* (and a subset of attributes) is the only entity part of the product that is distributed in KML format. The name of the KML file is structured accordingly:

nrn\_rrn\_<identifier>\_kml\_en.kmz

- nrn\_rrn = Abbreviated English and French product title.
- <identifier> = Code of a province or a territory corresponding to the dataset location. Possible codes are: ab, bc, mb, on, nb, nl, ns, nt, nu, pe, qc, sk, yt.
- kml Dataset distribution format.
- en ISO code of the dataset distribution language.
- .kmz = File name extension.

Example:

- nrn\_rrn\_ab\_kml\_en.kmz (*Road Segment* for dataset of Alberta).

## 4.3 Shape file names

The entities of the product distributed in Shape format are divided according to their geometrical representation. The name of the Shape files is structured accordingly:

NRN\_<IDENTIFIER>\_<edition>\_<version>\_<ENTITY>[\_<MODIFICATION>].shp

- NRN = Abbreviated product title.
- <IDENTIFIER> = Code of a province or a territory corresponding to the dataset location. Possible codes are: AB, BC, MB, ON, NB, NL, NS, NT, NU, PE, QC, SK, YT.
- <edition> = Dataset edition number.
- <version> = Dataset version number.
- <ENTITY> = Abbreviated entity name as defined in section 4.5.1.
- [<MODIFICATION>] = [] = Optional. Type of modification applied to the dataset entities and attributes in comparison to previous edition. Possible values are identified in section 4.5.2.
- .shp = Extension of the main geometry file name.

There are also five other files associated with the main geometry file of an entity in Shape format:

- an attribute file (.dbf for dBASE® file);
- a projection file (.prj) which includes information about the reference system and the parameters of the cartographic projection;

- an index file (.shx) containing the offset (relative position) for each record of the main geometry file;
- two spatial index files for the geometrical data (.sbn, .sbx).

Examples:

- NRN\_AB\_4\_0\_ROADSEG.shp (Entity *Road segment* for dataset of Alberta, edition 4, version 0);
- NRN\_AB\_4\_0\_ROADSEG\_ADDED.shp (Geometrical entities and/or basic attributes added to *Road segment* in dataset of Alberta, edition 4, version 0).

#### 4.4 Metadata file

There are four metadata files that are distributed with each dataset of an NRN product. Two files are provided in FGDC/XML format (in French and in English) and two others according to FGDC/HTML format. The name of the metadata file is structured accordingly:

nrn\_rrn\_<identifier>\_<edition>\_<version>\_fgdc\_<code language>.<format>

- nrn\_rrn = Abbreviated English and French product title.
- <identifier> = Code of a province or a territory corresponding to the dataset location. Possible codes are: ab, bc, mb, on, nb, nl, ns, nt, nu, pe, qc, sk, yt.
- <edition> = Dataset edition number.
- <version> = Dataset version number.
- fgdc = Metadata file format according to CSDGM standard of the Federal Geographic Data Committee (FGDC).
- <code language> = Metadata ISO code language written in lowercase: fr (French), en (English).
- <format> = File name extension (xml or html).

Examples:

- nrn\_rrn\_ab\_4\_0\_fgdc\_en.xml (English metadata file for dataset of Alberta, edition 4, version 0 in FGDC/XML format)
- nrn\_rrn\_ab\_4\_0\_fgdc\_fr.html (French metadata file for dataset of Alberta, edition 4, version 0 in FGDC/HTML format)

#### 4.5 List of distribution files names

The NRN product is comprised of two types of datasets: a file that contains up to date (actualized) data (e.g. that has been updated) and a file containing the modifications (differences) applied to the previous edition of the dataset.

#### 4.5.1 Dataset

The name of a file in GML format is NRN\_<IDENTIFIER>\_<edition>\_<version>\_<CONTENT>. The name of a file in Shape format is NRN\_<IDENTIFIER>\_<edition>\_<version>\_<ENTITY>. The extension of the file name corresponds to the distribution format.

Feature catalogue Entity name	GML/KML* Entity name	Shape File name (<ENTITY>)	Type
Address Range	AddressRange	ADDRANGE	Table **
Alternate Name Link	AlternateNameLink	ALTNAMLINK	Table **
Blocked Passage	BlockedPassage	BLKPASSAGE	Point
Ferry Connection Segment	FerryConnectionSegment	FERRYSEG	Line
Junction	Junction	JUNCTION	Point
Road Segment	RoadSegment *	ROADSEG	Line
Street and Place Names	StreetPlaceNames	STRPLANAME	Table **
Toll Point	TollPoint	TOLLPOINT	Point

\* KML content (simplified version of the dataset)

\*\* Attributes file (.dbf) in Shape format and entities without geometry in GML format.

#### 4.5.2 Change management files

Change management consists in identifying the effects of an addition, confirmation, retirement and modification of the objects (geometry and/or attribute) between two consecutive dataset editions. A data file is produced for each effect type. The name of the file in GML format is NRN\_<IDENTIFIER>\_<edition>\_<version>\_<CONTENT>\_<MODIFICATION> and in Shape format is NRN\_<IDENTIFIER>\_<edition>\_<version>\_<ENTITY>\_<MODIFICATION>. The extension of the file name corresponds to the distribution format.

Change management Effect name	GML File name (<MODIFICATION>)	Shape File name (<MODIFICATION>)
Added	<GML File Name>_ADDED	<Shape File Name>_ADDED
Confirmed	<GML File Name>_CONFIRMED	<Shape File Name>_CONFIRMED
Modified	<GML File Name>_MODIFIED	<Shape File Name>_MODIFIED
Retired	<GML File Name>_RETIRED	<Shape File Name>_RETIRED

A readme text file named: README\_<IDENTIFIER>.txt that identifies the method used for the [follow-up of the geometrical modifications](#) is provided with the dataset.

## 5 ATTRIBUTES IDENTIFICATION

The attributes common to all entities of the NRN product are listed in the first table. The attributes specific to each entity are presented in the following subsection.

The data type for all distribution formats is either: C(c) for character or N(n,d) for number (c = number of characters, n = total number of digits, d = number of digits in decimal).

### 5.1 Attributes common to all entities (except *Alternate name link*)

Feature catalogue Attribute name	GML Attribute name	Shape Attribute name	Data Type
Acquisition Technique	acquisitionTechnique	ACQTECH	C(23)
Coverage	metadataCoverage	METACOVER	C(8)
Creation Date	creationDate	CREDATE	C(8)
Dataset Name	datasetName	DATASETNAM	C(25)
Planimetric Accuracy	planimetricAccuracy	ACCURACY	N(4,0)
Provider	provider	PROVIDER	C(24)
Revision Date	revisionDate	REVDATE	C(8)
Standard Version	standardVersion	SPECVERS	C(100)

### 5.2 Attributes specific to entities

#### 5.2.1 Address Range

Feature catalogue Attribute name	GML Attribute name	Shape Attribute name	Shape Data Type
Alternate Street Name NID (left, right)	left_AlternateStreetNameNid	L_ALTANANID	C(32)
	right_AlternateStreetNameNid	R_ALTANANID	C(32)
Digitizing Direction Flag (left, right)	left_DigitizingDirectionFlag	L_DIGDIRFG	C(18)
	right_DigitizingDirectionFlag	R_DIGDIRFG	C(18)
First House Number (left, right)	left_FirstHouseNumber	L_HNUMF	N(9,0)
	right_FirstHouseNumber	R_HNUMF	N(9,0)
First House Number Suffix (left, right)	left_FirstHouseNumberSuffix	L_HNUMSUFF	C(20)
	right_FirstHouseNumberSuffix	R_HNUMSUFF	C(20)
First House Number Type (left, right)	left_FirstHouseNumberType	L_HNUMTYPF	C(16)
	right_FirstHouseNumberType	R_HNUMTYPF	C(16)
House Number Structure (left, right)	left_HouseNumberStructure	L_HNUMSTR	C(9)
	right_HouseNumberStructure	R_HNUMSTR	C(9)
Last House Number (left, right)	left_LastHouseNumber	L_HNUML	N(9,0)
	right_LastHouseNumber	R_HNUML	N(9,0)
Last House Number Suffix (left, right)	left_LastHouseNumberSuffix	L_HNUMSUFL	C(20)
	right_LastHouseNumberSuffix	R_HNUMSUFL	C(20)
Last House Number Type (left, right)	left_LastHouseNumberType	L_HNUMTYPL	C(16)
	right_LastHouseNumberType	R_HNUMTYPL	C(16)
NID	nid	NID	C(32)
Official Street Name NID (left, right)	left_OfficialStreetNameNid	L_OFFNANID	C(32)
	right_OfficialStreetNameNid	R_OFFNANID	C(32)
Reference System Indicator (left, right)	left_ReferenceSystemIndicator	L_RFSYSIND	C(18)
	right_ReferenceSystemIndicator	R_RFSYSIND	C(18)

### 5.2.2 Alternate Name Link

Feature catalogue Attribute name	XML Attribute name	Shape Attribute name	Shape Data Type
Creation Date	creationDate	CREDATE	C(8)
Dataset Name	datasetName	DATASETNAM	C(100)
NID	nid	NID	C(32)
Revision Date	revisionDate	REVDATE	C(8)
Standard Version	standardVersion	SPECVERS	C(100)
Street Name NID	streetNameNid	STRNAMENID	C(32)

### 5.2.3 Blocked Passage

Feature catalogue Attribute name	GML Attribute name	Shape Attribute name	Shape Data Type
Blocked Passage Type	blockedPassageType	BLKPASSTY	C(17)
NID	nid	NID	C(32)
Road Element NID	roadElementNid	ROADNID	C(32)

### 5.2.4 Ferry Connection Segment

Feature catalogue Attribute name	GML Attribute name	Shape Attribute name	Shape Data Type
Ferry Segment ID	ferrySegmentId	FERRYSEGID	N(9,0)
Functional Road Class	functionlaRoadClass	ROADCLASS	C(21)
NID	nid	NID	C(32)
Route Name English (1, 2, 3, 4)	routeNameEnglish1	RTENAME1EN	C(100)
	routeNameEnglish2	RTENAME2EN	C(100)
	routeNameEnglish3	RTENAME3EN	C(100)
	routeNameEnglish4	RTENAME4EN	C(100)
Route Name French (1, 2, 3, 4)	routeNameFrench1	RTENAME1FR	C(100)
	routeNameFrench2	RTENAME2FR	C(100)
	routeNameFrench3	RTENAME3FR	C(100)
	routeNameFrench4	RTENAME4FR	C(100)
Route Number (1, 2, 3, 4, 5)	routeNumber1	RTNUMBER1	C(10)
	routeNumber2	RTNUMBER2	C(10)
	routeNumber3	RTNUMBER3	C(10)
	routeNumber4	RTNUMBER4	C(10)
	routeNumber5	RTNUMBER5	C(10)

### 5.2.5 Junction

Feature catalogue Attribute name	GML Attribute name	Shape Attribute name	Shape Data Type
Exit Number	exitNumber	EXITNBR	C(10)
Junction Type	junctionType	JUNCTYPE	C(12)
NID	nid	NID	C(32)

## 5.2.6 Road Segment

Feature catalogue Attribute name	GML/KML* Attribute name	Shape Attribute name	Shape Data Type
Address Range Digitizing Direction Flag (left, right)	left_AddressDirectionFlag *	L_ADDDIRFG	C(18)
	right_AddressDirectionFlag *	R_ADDDIRFG	C(18)
Address Range NID	addressRangeNid	ADRANGENID	C(32)
Exit Number	exitNumber	EXITNBR	C(10)
First House Number (left, right)	left_FirstHouseNumber	L_HNUMF	C(30)
	right_FirstHouseNumber	R_HNUMF	C(30)
Functional Road Class	functionlaRoadClass	ROADCLASS	C(21)
Last House Number (left, right)	left_LastHouseNumber	L_HNUML	C(30)
	right_LastHouseNumber	R_HNUML	C(30)
NID	nid *	NID	C(32)
Number Of Lanes	numberLanes	NBRLANES	N(4,0)
Official Place Name (left, right)	left_OfficialPlaceName *	L_PLACENAM	C(100)
	right_OfficialPlaceName *	R_PLACENAM	C(100)
Official Street Name Concatenated (left, right)	left_OfficialStreetNameConcat *	L_STNAME_C	C(100)
	right_OfficialStreetNameConcat *	R_STNAME_C	C(100)
Paved Road Surface Type	pavedRoadSurfaceType	PAVSURF	C(8)
Pavement Status	pavementStatus	PAVSTATUS	C(7)
Road Segment ID	roadSegmentId	ROADSEGID	N(9,0)
Route Name English (1, 2, 3, 4)	routeNameEnglish1	RTENAME1EN	C(100)
	routeNameEnglish2	RTENAME2EN	C(100)
	routeNameEnglish3	RTENAME3EN	C(100)
	routeNameEnglish4	RTENAME4EN	C(100)
Route Name French (1, 2, 3, 4)	routeNameFrench1	RTENAME1FR	C(100)
	routeNameFrench2	RTENAME2FR	C(100)
	routeNameFrench3	RTENAME3FR	C(100)
	routeNameFrench4	RTENAME4FR	C(100)
Route Number (1, 2, 3, 4, 5)	routeNumber1 *	RTNUMBER1	C(10)
	routeNumber2	RTNUMBER2	C(10)
	routeNumber3	RTNUMBER3	C(10)
	routeNumber4	RTNUMBER4	C(10)
	routeNumber5	RTNUMBER5	C(10)
Structure Name English	structureNameEnglish	STRUNAMEEN	C(100)
Structure Name French	structureNameFrench	STRUNAMEFR	C(100)
Structure ID	structureId	STRUCTID	C(32)
Structure Type	structureType	STRUCTTYPE	C(15)
Unpaved Road Surface Type	unpavedRoadSurfaceType	UNPAVSURF	C(7)

\* KML content (simplified version of the dataset)

**5.2.7 Street and Place Names**

<b>Feature catalogue Attribute name</b>	<b>XML Attribute name</b>	<b>Shape Attribute name</b>	<b>Shape Data Type</b>
Directional Prefix	directionalPrefix	DIRPREFIX	C(10)
Directional Suffix	directionalSuffix	DIRSUFFIX	C(10)
Muni Quadrant	muniQuadrant	MUNIQUAD	C(10)
NID	nid	NID	C(32)
Place Name	placeName	PLACENAME	C(100)
Place Type	placeType	PLACETYPE	C(100)
Province	province	PROVINCE	C(25)
Street Name Article	streetNameArticle	STARTICLE	C(20)
Street Name Body	streetNameBody	NAMEBODY	C(50)
Street Type Prefix	streetTypePrefix	STRTPRE	C(30)
Street Type Suffix	streetTypeSuffix	STRYSUF	C(30)

**5.2.8 Toll Point**

<b>Feature catalogue Attribute name</b>	<b>GML Attribute name</b>	<b>Shape Attribute name</b>	<b>Shape Data Type</b>
NID	nid	NID	C(32)
Road Element NID	roadElementNid	ROADNID	C(32)
Toll Point Type	tollPointType	TOLLPTTYPE	C(22)