User Manual

CanMap® Rail
Version 2.2

really smart spatial solutions™

www.dmtispatial.com

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About DMTI Spatial™

DMTI Spatial Inc. is Canada's leading spatial solutions provider. We enable users to understand their customers, optimize resources, realize opportunities, maximize profitability and make more informed decisions through accurate products and innovative thinking.

DMTI Spatial publishes precision built street map, rail and routing data (CanMap®), a detailed water layer, and innovative geocoding and address management software (GeoPinpoint™). In addition, DMTI Spatial publishes a full range of positionally accurate geospatial data products including: enhanced points of interest (EPOI), census data and boundaries, postal geography, topographic maps, and US mapping data. As part of a complete business geographic solution, DMTI Spatial offers a wide range of GIS services, consulting, and software training.

Established in 1994, DMTI Spatial is committed to setting the standard within the GIS industry for precision built spatial data and geocoding software products.

At DMTI Spatial, we believe that our true strength comes from working closely with our customers and providing innovative solutions to meet their strategic business objectives. As Canada's premier spatial solutions provider we pride ourselves with having worked with North America's leading organizations to support their mission critical applications.

DMTI Spatial works with large and small organizations representative of a wide variety of industries:

- Agriculture
- Banking/Finance
- Consulting
- Education
- Emergency Services
- Engineering
- Environmental
- Forestry
- Government
- Health
- High Technology
- Insurance
- Manufacturing
- Media
- Mining
- Real Estate
- Retail
- Telecommunications
- Transportation
- Utilities

We are a member of the ESRI Canada Business Partner Program, and winner of the 2001 ESRI Worldwide New Business Partner of the Year Award. Strategic business partner of Tele Atlas North America, and winner of the Markham Board of Trade 2000 Award for Entrepreneurship and Innovation. Recipient of The Association of Canadian Map Libraries and Archives (ACMLA) 2002 Certificate of Appreciation.

Really Smart Spatial Solutions™

Through the application of its products and services, DMTI Spatial has been involved with projects such as: location-based services, logistics planning, emergency dispatch, facilities management, data management, customer care, address management, land base development in support of network planning, and marketing/demographic analysis applications.

DMTI Spatial can provide all of the components necessary for the acquisition, implementation, operation and maintenance of a successful GIS system within companies of all sizes. Through its product and service offering, DMTI Spatial can provide users with 5 key components:

1. Accurate, detailed and compatible data
2. Comprehensive maintenance program
3. GIS software
4. Consulting and services
5. Software training

DMTI Spatial™ Product & Service Portfolio

DMTI Spatial's product & service offering includes:

CanMap® - *Digital Map Data for Canada*
- CanMap® Streetfiles
- CanMap® RouteLogistics
- CanMap® Rail
- CanMap® Major Roads and Highways
- CanMap® Parks
- CanMap® Water
- CanMap® Populated Placenames

MultiNet™ - *Digital Map Data for USA*
- Tele Atlas MultiNet™

Municipal Amalgamations
- Municipality Amalgamation File (MAF)

Business & Recreational Points of Interest
- Enhanced Points Of Interest (EPOI)

GeoPinpoint™ Suite
- Canada's Geocoding Solution
- Modular Architecture
- Windows Standalone Desktop Version
- UNIX, Java Wrapper, ActiveX (DLL Version)

Topographic Data and Base Maps
- Canadian Atlas Map Bundle (CAMB)
- National Topographic Data Base (NTDB)
- 30 & 90m Digital Elevation Models (DEM)
- Clutter Data

Postal Geography & Data
- Six-Digit Postal Code File
- Enhanced Postal Code File
- Forward Sortation Area (FSA) Boundary File

1996 Census Boundaries & Demographic Data
- Enumeration Area (EA)
- Census Subdivision (CSD)
- Census Division (CD)
- Census Metropolitan Area/Census Agglomeration (CMA/CA)
- Census Tract (CT)
- Federal Electoral Districts (FED)

2001 Census Boundaries
- Dissemination Area (DA)
- Census Subdivision (CSD)
- Census Division (CD)
- Census Metropolitan Area/Census Agglomeration (CMA/CA)
- Census Tract (CT)
- Federal Electoral Districts (FED)

GIS Software
- Contour Modeling and Display
- Demographic Profiling and Lifestyle Targeting
- Geocoding and Mapping Software
- Routing and Logistics

Consulting and Services
- Address Management Solution (AMS)
- Application Development
- Database Marketing
- Data Conversion and Creation
- Database Scrubbing
- Geocoding Services
- GIS Consulting
- Technical Support

Error Reporting & Wish List Services

DMTI Spatial is committed to building the best products possible for our customers. By using our data every day in your mission critical application you are our best product tester. Please let us know if you have found an error in any of our products so that we can make the correction for the next release.

This is your opportunity to provide feedback directly to the DMTI Spatial Product Development Team. Please be as specific as possible so that we can improve our products quickly and accurately. To access the Error Reporting Web page please visit: http://www.dmtispatial.com/error_reporting.html or send an e-mail to: fixme@dmtispatial.com

If you have an idea for a new product or an existing product enhancement, please submit your ideas to the Wish List Web page: http://www.dmtispatial.com/product_wish_list.html or send an e-mail to: wishlist@dmtispatial.com

Over the coming months DMTI Spatial will keep you informed of new product releases, enhancements and strategic alliances. Our goal is to provide you with powerful knowledge based tools to help you attain and maintain your competitive advantage.

Contact Information

DMTI Spatial Inc.
625 Cochrane Drive, 3rd Floor
Markham, Ontario
L3R 9R9 Canada

Telephone: 905-948-2000
Toll Free: 1-877-477-DMTI (3684)
Fax: 905-948-9404

Web Site: www.dmtispatial.com
E-mail: info@dmtispatial.com
Error Reporting Service: fixme@dmtispatial.com
Product Wish List Service: wishlist@dmtispatial.com

About CanMap® Rail

Layer Properties

Property	Description
Coverage	National
Currency	August 15, 2004
Level of Accuracy	Ranging from the National Topographic Data Base (NTDB) standard to sub-meter accuracy
Projection	All layers are displayed as unprojected Longitude-Latitude
Datum	All layers are in NAD83 datum
Format	ESRI and MapInfo[1]

Layer Naming Conventions and Directory Structure

CanMap Rail is organized into the following directory structure and uses the following directory and file naming conventions:

example: \CanRail\ON\Rail\ONrl

Product Directory	Geographic Area Directory	Product Directory	Geographic Area Abbreviation	Layer Content Abbreviation
CanRail	ON = Ontario	Rail	ON = Ontario	rl

The geographic area directory area indicates the geographic coverage of the layer, for example ON = Ontario.

The Geographic Area Name indicates the geographic extent of the file. DMTI Spatial's standard geographic coverage areas include all Provinces and Territories as well the coverage areas found in the CANtop file included with Bonus Canada Directory.

[1] Custom formats available upon request. Refer to Canada Directory Manual *Appendix A: ESRI File Extensions* and *Appendix B: MapInfo File Extensions* for more information regarding file extensions.

About CanMap Rail *(cont'd)*

Layer Contents

The CanMap Rail is comprised of the following layers:

Layer Name	Feature Description	Feature Type
*AREA***rl**[2]	Railway and Transit Lines	Line/Polyline
AREA**trs**[2]	Transportation Stops	Point

For more information regarding these layers refer to the *Data Dictionary* of this CanMap Rail manual.

The Canada Directory is included with the CanMap Rail product. The Canada Directory consists of Capital Cities, Area Code Boundaries, Time Zone boundaries, Provincial/Territorial boundaries, Regional Municipality Boundaries, Urban Boundaries, generalized national water bodies and 1996 Census Subdivision (CSD) boundaries and data. For more information regarding the Canada Directory refer to the *Canada Directory* manual included with the CanMap Rail User Manual.

[2] Where *AREA* refers to a DMTI Spatial Standard Geographic Areas

Using CanMap® Rail

Viewing DMTI Spatial Products

Packaged with DMTI Spatial products are several custom viewing files for MapInfo® Professional, ESRI® ArcView® GIS and ESRI® ArcGIS®.

Software	Extension	Version Support
MapInfo Professional	*.wor	Version 4.5 and higher
ESRI ArcView GIS	*.apr	Version 3.0 and higher
ESRI ArcGIS	*.mxd	Version 8.1 and higher

Located in the product directory, these viewing files have been provided to maximize the ease of use of DMTI Spatial products by intelligently layering various data layers and displaying them based on appropriate viewing scales.

Viewing CanMap Rail

CanMap Rail workspaces or project files are found in the product directory:

example: **CANrail**\ON\Canada

Product Directory	Geographic Area Abbreviation	Workspace/ Project File
CanRail	ON = Ontario	*ON***rl**

If you wish to view the CanMap Rail with the provided workspaces or project files, the displayed layers include:

Layer Name	Description
CAN**cap**	Capital Cities derived from CANmap Populated Placenames
CAN**prv**[3]	Provincial/Territorial Boundaries
*AREA***rl**	Railway and Transit Lines
*AREA***trs**	Transportation Stops
CAN**wat**	National Water

Layers that are not displayed as part of the CanMap Rail workspace or project file include:

Layer Name	Description
CAN**acb**	Area Code Boundaries
CAN**rmn**	Regional Municipality Boundaries
CAN**top**	Topographic Coverage Areas
CAN**tzd**	Time Zones (Daylight Savings Time)
CAN**tzs**	Time Zones (Standard Time)

[3] For more information refer to Canada Directory Manual *Appendix C: Provincial and Territorial Codes and Abbreviations*

Using CanMap Rail *(cont'd)*

Suggested Layering for CanMap Rail

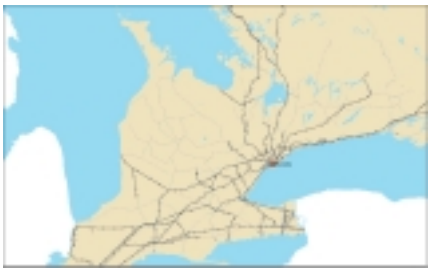
If you wish to view CanMap Rail layers without the provided workspaces or project files, DMTI Spatial recommends using the following layering system to properly view CanMap Rail.

Layer Name	Description
CAN**cap**	Capital Cities derived from CANmap Populated Placenames
*AREA***trs**	Transportation Stops
*AREA***rl**	Railway and Transit Lines
CAN**wat**	National Water
CAN**prv**	Provincial/Territorial Boundaries

For example, when viewing DMTI Spatial boundary layers, the national water layer should be placed above any DMTI boundary layer.

Data Dictionary

Railway and Transit Lines (rl)



Layer Location

\Topo*AREA***rl**

Layer Structure

Field Name	Type	Size	Description
OWNER	Char	68	Railway Owner/Operator
CARTO	Decimal	3,0	Cartographic Rail Classification
ACCESS1	Char	50	Alternate Railway Owner/Operator
ACCESS2	Char	50	Alternate Railway Owner/Operator
ACCESS3	Char	50	Alternate Railway Owner/Operator
TRS_RTE	Char	68	Transit Route
RTE_TYPE	Char	3	Route Type
PROV	Char	2	Province
US_RAILCO	Char	15	American owner/operator of connecting US railway line
US_STP	Char	50	American railway station of entry on connecting US railway line
US_STATE	Char	2	American State the connecting US railway line enters
CR	Decimal	1,0	Transit: Commuter Rail Flag
LRT	Decimal	1,0	Transit: Light Rail Flag
RT	Decimal	1,0	Transit: Rapid Transit Flag
CODE	Decimal	4,0	Classification Code
FEATURE	Char	76	Railway Feature Type
RL_ID	Decimal	9,0	Railway unique identifier (Unique ID)

- Rail Transit lines have been integrated with the Railway lines. The TRS_TYPE and RTE_TYPE fields have been added to the Railway lines in order to accomadate the transit data. Three flag fields CR, LRT and RT have been included so that Rail Transit lines can be queried out to create a separate transit layer. In cases where a transit line has shared access with a railway line, the OWNER field will contain the railway data and the transit data will be contained in one of the ACCESS fields.

- The MAIN, SIDETRACK and ABANDONED flags have been removed and replaced by a new CARTO field that includes rail classifications for each of those categories and a transit carto. See Appendix A : Cartographic Road and Rail Classifications for carto descriptions.

Layer Content

CODE	FEATURE
91	BRIDGE
935	RAILWAY: ABANDONED
961	RAILWAY: SPECIAL, OTHER, OPERATIONAL, SINGLE
962	RAILWAY: OPERATIONAL
963	RAILWAY: OPERATIONAL, SIDETRACK
1376	TUNNEL

Transit Definitions

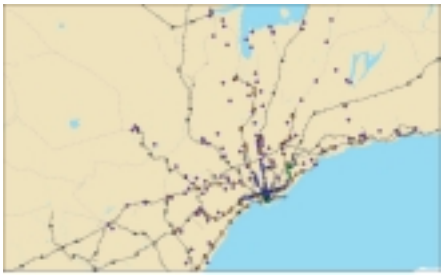
Commuter rail (CR) is a transit railway within urbanized areas, or between urbanized areas and outlying suburbs and regions within commuting distance. These transit lines are often shared with Railway lines.

Rapid Transit (RT) (**metro**, **subway)** is a high speed transit railway at ground level or below within urbanized areas.

Light rail (LRT) (**streetcar**, **tramway**, **automated guideway transit**) is a transit railway that operates on a loop within the central business district of a city or connecting the business district to its suburbs.

Data Dictionary *(cont'd)*

Transportation Stops (trs)



Layer Location

\POI*AREA***trs**

Layer Structure

Field Name	Type	Size	Description
NAME	Char	150	Transportation Stop name
CITY	Char	68	City or municipality
PROV	Char	2	Provincial/Territorial Abbreviation
TRS_TYPE	Char	25	Transportation Stop classification (if available)
OWNER	Char	68	Transportation Stop owner/operator
ROUTE	Char	100	Transportation Stop Route
TRS_NUM	Char	8	Transportation Stop number (if available)
CODE	Decimal	4,0	Classification Code
FEATURE	Char	76	Transportation Stop Feature Type
PREC_CODE	Char	2	Precision Code
ATTRIB_CODE	Char	2	Attribute Code
POI_ID	Char	15	Transit Stop unique identifier (Unique ID)

- Bus and Rail Transit stops have been merged with the Railway Stops to create a Transportation Stops layer. Some fields were added and others changed name or type to accommodate the transit data. See table above for descriptions of each field.

Layer Content

CODE	FEATURE
150	BUS STOP
151	BUILDING: RAPID TRANSIT STATION
152	BUILDING: LIGHT RAIL TRANSIT STATION
154	BUILDING: COMMUTER RAIL STATION
155	BUILDING: RAILWAY STATION

Appendix A: Cartographic Road and Rail Classifications

Carto #	Carto Name	Description
1	Expressway	Expressways and 400 series highways, e.g. Highway 401, Don Valley Parkway
2	Primary Highway	Primary Highway, e.g. Highway 7, Highway 11
3	Secondary Highway	Secondary Highways
4	Major Road	Major road or Arterial road, e.g. Bayview Ave
5	Local Road	Subdivision road in a city or gravel road in a rural area
6	Trail	Trails
10	Main	Main Railway and Transit Lines (includes segments of rail that are shared with transit)
11	Sidetrack	Sidetrack of Main Railway Route
12	Abandoned	Abandoned sections of Main Railway Route
13	Transit	Transit lines that are not shared with Railway lines
20	Ferry Route	Approximate travel route of Ferry
21	Ferry Ramp	Ferry Ramp
22	Ice Road	Approximate travel route of Ice Road
23	Ice Ramp	Ice Ramp
24	Ferry Route/Ice Road	Approximate travel route of Ferry/Ice Road
25	Ferry/Ice Ramp	Ferry/Ice Ramp