

**Oracle Utilities Mobile Workforce
Management**

Map Editor User's Guide

Release 2.3.0.2.0 for Windows

E91549-01

February 2018

Oracle Utilities Mobile Workforce Management Map Editor User's Guide , Release 2.3.0.2.0 for Windows
Copyright © 2000, 2018 Oracle and/or its affiliates. All rights reserved.

Primary Author: Anila Kennedy

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

Chapter 1

Introduction	1-1
Map Objectives	1-2
Definitions	1-2

Chapter 2

Display and Controls	2-1
The Map Editor Main Window	2-2
The Map Display	2-2
Window local menu	2-4
Menu Bar.....	2-7
Menus.....	2-7
Activating a Menu	2-7
File Menu	2-9
Load.....	2-10
Load MAL format.....	2-27
Save MAL format.....	2-27
Load HIP format.....	2-27
Save HIP format.....	2-28
Loading Raster Map.....	2-28
Closing Raster Map.....	2-28
Printing Map	2-28
Quitting Map Editor.....	2-28
View Menu.....	2-30
Zooming In / Out	2-30
Reset the map	2-30
Raster Map	2-30
Greyscale	2-31
Links.....	2-32
Zones	2-32
Windows Menu	2-33
Speed Legend.....	2-33
Map Layers Info	2-33
Info Window.....	2-35
Link Info.....	2-36
Options Menu	2-37
Two-directional Links.....	2-37
Auto Centre.....	2-37
Modify Map.....	2-37
Operations Menu	2-38
Edit Zone Operations	2-38
Search	2-41
Join Map	2-44
Check Duplicate Links	2-45
Connectivity	2-45

Compress.....	2-46
Count Transitive Links.....	2-46
Compress Traffic Layers.....	2-47
Help Menu.....	2-48
Tool Bar.....	2-49

Chapter 3

Map Editor Operations.....	3-1
Editing a Map.....	3-2
Load a Map.....	3-2
Enable Editing of the Map.....	3-2
Editing a Single Link.....	3-2
Editing Multiple Links at Once.....	3-3
Saving and Loading Map Edits.....	3-6

Appendix A

Creating MWM Maps.....	A-1
-------------------------------	------------

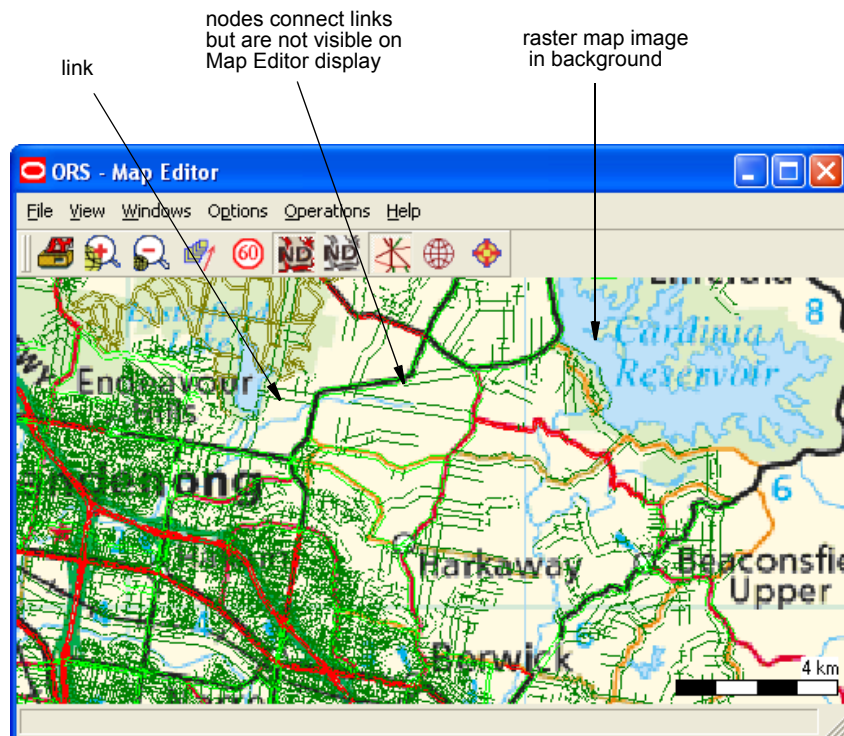
Appendix B

Map Editor Configuration Parameters.....	B-1
---	------------

Chapter 1

Introduction

Oracle Utilities Mobile Workforce Management maps are used by the Scheduler, a component of the Oracle Utilities Mobile Workforce Management application, to obtain travel information and to display places and travel paths in a particular geographical region. A map consists of Nodes (geographical locations, etc.) and inter-node Links for which the direction, distance and travel times are known.



As of this release, you may create output maps in HIP format. HIP format maps can store and convey to scheduler information about historical road speeds for the day of week, time of day. This information can be obtained from the HERE “Historic Traffic Patterns” product as part of the scheduler map file.

MAL format maps may still be used where time dependent road-speeds are not a requirement.

Map Objectives

The objectives of the map are to provide:

- **Connectivity** (route) information
- **Travel time** information
- **Graphical display** information

The Map Editor is a map editing utility in which map links can be edited using simple mouse operations.

The Links which make up the map data are displayed as lines in the Map Display Window on the screen and the Nodes though invisible are always at the end or intersection of Links. The Nodes represent geographical positions to which vehicles can travel or the locations of geographical features, while the Links represent the travel paths by which the vehicles travel from one Node to another.

The Map Editor Display Window can display raster and greyscale map images, such as a picture of a topographic map or street directory, concurrently with the Node and Link data. These picture image backgrounds, greatly assist in the editing process, and make the geographic relationships of the map data more meaningful.

The following chapters describe the Map Editor display, menus, operations and controls while giving the reader a clear understanding of how to use Map Editor to edit maps.

Definitions

Term	Definition
Map Editor	The Oracle Utilities Mobile Workforce Management software which reads mapping data from third party providers (like HERE), applies edits and writes the resulting maps in a format suitable for scheduling.
Scheduler	Oracle Utilities Mobile Workforce Management software that uses the maps created or edited by Map Editor for travel time estimates to calculate the best possible schedules.
Node	A geographical location (for example: intersection or bend in the road etc.) on a map.
Link	A road segment on a map, connecting two nodes and having a known direction, distance and speed.
Toll	A penalty associated with travel along a certain link. This penalty is not associated with the running cost of a vehicle but is used to discourage the use of these links.
Base Layer	This is the “standard” or “default” map, all other layers modify the speeds on this layer. Note that this map is assumed to be the fastest of all layers. The “Base Layer” is used to calculate travel-times and routes where none of the “Traffic Layers” apply.
Traffic Layer	Any layer other than the Base Layer. Adjusts road-speeds for specified dates, day-of-week and times.

Chapter 2

Display and Controls

This chapter describes the Main Window display, it's associated permanent panel - the Menu Bar, Tool Bar and all the menu options and associated sub windows. It includes:

- [The Map Editor Main Window](#)
- [Menu Bar](#)
- [File Menu](#)
- [View Menu](#)
- [Windows Menu](#)
- [Options Menu](#)
- [Operations Menu](#)
- [Help Menu](#)
- [Tool Bar](#)

The Map Editor Main Window

When Map Editor is initiated, an application window is created on the screen that consists of a window frame containing a Main Menu Bar, a Toolbox panel and a Map Display area.

The map data is displayed in the Map Display Area of the application window. The extent of map data being displayed on the Display Area can be controlled by:

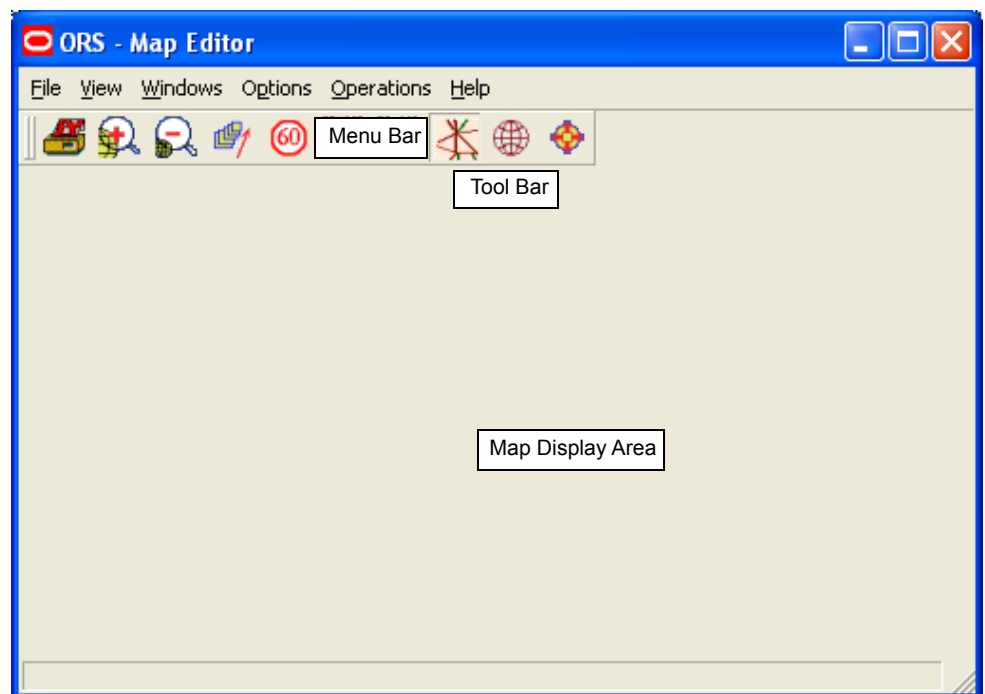
- resizing the Main Window
- or adjusting its magnification.

The map data is edited by using the mouse to select map Links from the Map Display area. The techniques for editing data will be described in detail later in this manual. (See [Map Editor Operations](#) on page 3-1.)

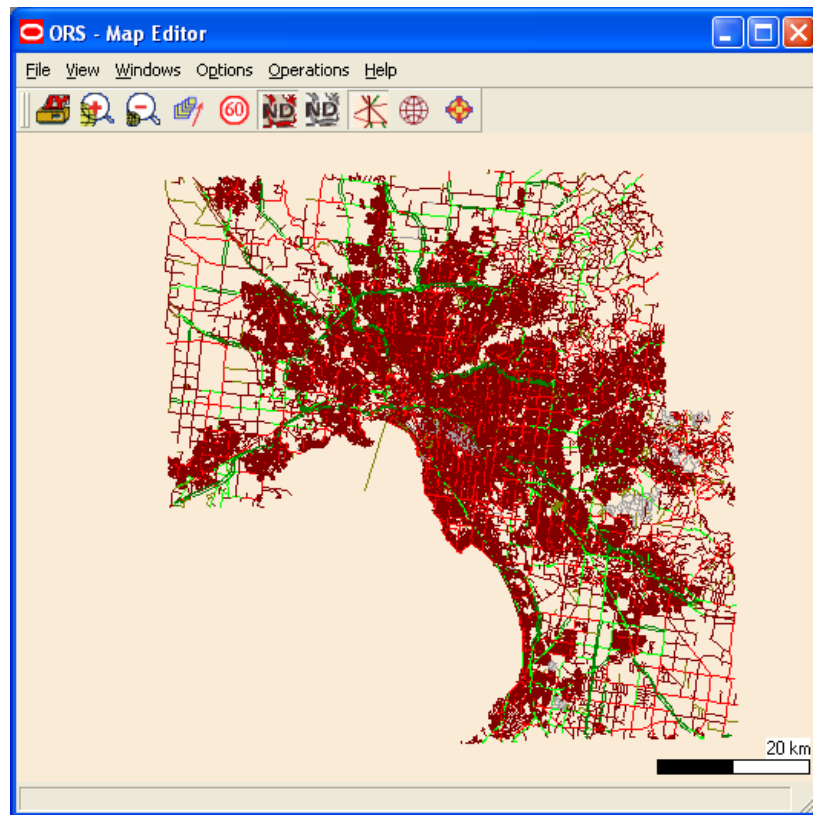
The Menu Bar allows control of general operations, but does not directly cause any change to occur in the map data.

The Map Display

Map Editor can be configured to start up with or without a map. The following image is a snapshot of the default Map Editor start up screen.



When a map has been loaded, the Links in the map are displayed in the Map Display Area as illustrated in the figure below. The Links are displayed as colored straight lines joining pairs of Nodes, one Link for each direction along the travel path between them. Link colors represent different road speeds. See [Speed Legend](#) on page 2-33 for more details on map road speed legends.



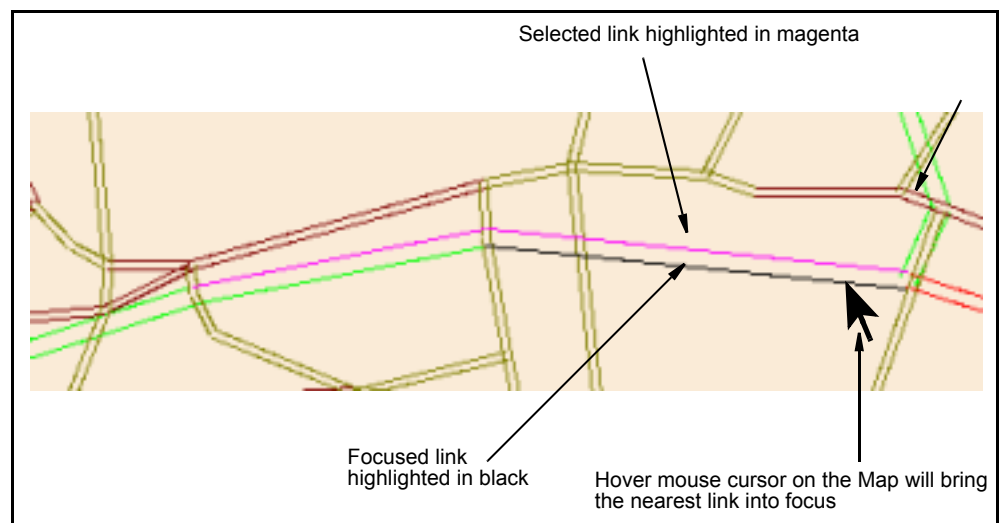
Note: Nodes are not visible on the Map Editor Display

Selections

One or more Links can be selected from the displayed Map. This can be done by selecting the *Modify Map* option from the *Options* menu and then performing Ctrl Left Click on the required Link. Please see [Editing Multiple Links at Once](#) on page 3-3 for more details on selecting map links.

A selected link can be deselected by redoing a Ctrl Left Click on the link.

Hovering the mouse cursor over a link will bring the nearest link into focus and will highlight it in black, which can then be selected with a Ctrl Left mouse Click. The selected links are highlighted in magenta by default.



Positioning the Map

The position of the map in the Map Editor display window can be changed arbitrarily by:

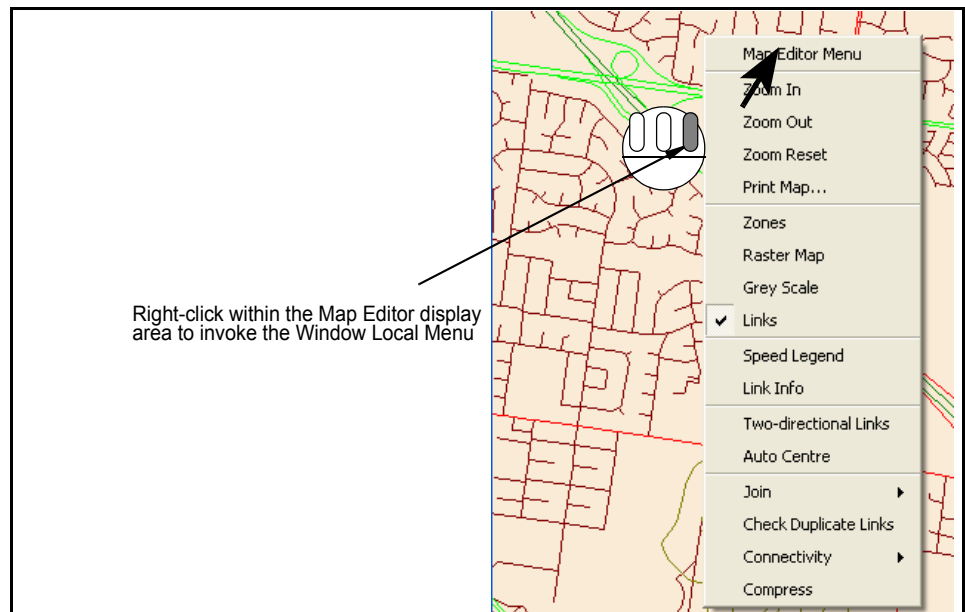
- using the mouse cursor to Shift Left Drag the map to a new location

OR

- pressing the middle mouse button and dragging in the required direction.

Window local menu**Local menu when no links are selected**

The Map Editor display features a window local menu with options which can be used to customize the map display. This menu can be invoked with a Right Click, anywhere within the display area.



In order to select an option from the Map Editor window local menu:

Position the mouse cursor on the required option and Right-click on it.

The window local menu options are outlined in the table below.

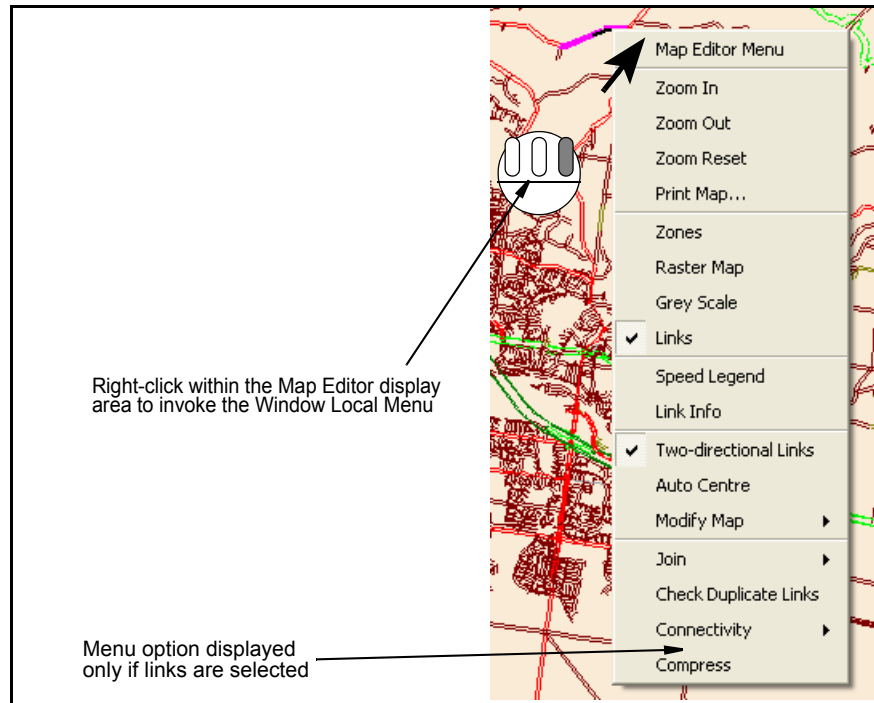
Menu Option	Description
Zoom In/Out	Increase or decrease the map display magnification.
Zoom Reset	Resets the map magnification to the minimum.
Print Map	Prints the Map displayed on the display area.
Zones	If Zone definitions are available, then their display can be toggled On or Off within the Map Editor display area.
Raster Map	Toggles the Raster Map display On/Off if available.
Greyscale	Toggles the Raster Map color display On/Off if available.
Links	Toggles the display of links on the Map display On/Off.

Menu Option	Description
Speed Legend	Map links are drawn with distinct colors to represent different road speeds which can be identified from a Speed legend window.
Map Layer Info	Allows to select a Traffic Layer to show road speeds on this layer. Map Links are drawn with distinct colors to represent different road speeds on a selected Traffic Layer.
Link Info	This option can be turned On to pop-up the "Node-Link Info" window. This window displays the details of the Link nearest to the mouse cursor at any time.
Two-directional Links	Toggles the display between single or double links on the Map display. This option is effective only while the "Links" option is enabled.
Auto Centre	This only works when the link is selected in the Link Search window. If turned On, automatically positions the Map within the display area such that links selected in the Link Search window are at its centre.
Modify Map	On invoking the window local menu while links are selected, an additional menu labelled "Modify Map" is also listed. Please see Editing Multiple Links at Once on page 3-3 for more details on the Modify Map option.
Join	Connects third party maps loaded into Map Editor by joining nodes at the same location.
Check duplicate Links	Finds duplicate links in the loaded map and removes them before saving to Oracle Utilities Mobile Workforce Management format.
Connectivity	Checks for Links that are not connected to the selected Link and removes them so that the remaining links form a connected map.
Compress Links	Compresses the map by removing redundant nodes.
Compress Traffic Layers	Compresses the original traffic layers provided by the original third party traffic information, into layers defined by user.

All the options listed under the Map Editor window local menu are also available from the Menus on the Main Menu bars.

Local menu while links are selected

On invoking the window local menu while links are selected, an additional menu labelled “Modify Map” is also listed. Please see [Editing Multiple Links at Once](#) on page 3-3 for more details on the “Modify Map” option.



Menu Bar

The Menu Bar displays a list of menus from which, either a range of configuration and display options can be selected or Sub windows to facilitate specific operations can be activated.



Menus

The available menus include the following:

Menu	Description
File	Enables loading, saving, printing of map files and proper termination of the Map Editor application.
View	Allows you to control the way a map is displayed by the Map Editor such as, controlling the map magnification, displaying zones and topographic map images.
Windows	Provides access to the windows like Info Window, Link Info, Speed Legend and Map Traffic Layers Info.
Options	Provides map options which can be toggled On or Off. The Options enable displaying single or two-way links and Auto Centre. Editing of selected Links can also be enabled from this menu.
Operations	Provides menu items to perform specific map operations like, editing zones, performing map checks, compressing maps, removing disconnected regions etc. and specifying search criteria to search for links.
Help	Displays the version of Map Editor software in use.

Each of the menu in the Main Menu Bar are described below. All disabled menu options are greyed out by default.

Activating a Menu

METHOD 1

When you Left Click one of the menu names, a further set of options may appear within a **pull-down** menu.

To make a choice from the pull-down menu, Left Click the mouse pointer over your choice.

To abandon the pull-down menu, move the mouse pointer out of the menu and Left Click.

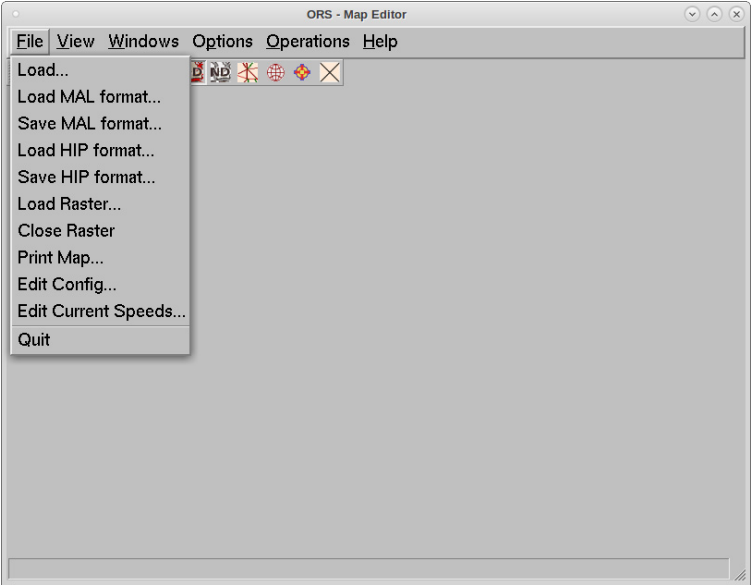
METHOD 2

Alternatively, this operation can be accomplished by a single Left Drag operation — for example, activate the menu from the Main Menu Bar with a Left Press (which displays

the pull-down menu), then Left Drag the cursor to the desired option and release the mouse button. To abandon the menu, do not release the button while inside the menu, but Drag the cursor outside the menu and then release the button.

File Menu

The File Menu options enable Loading, Saving, Printing and Closing of Map files. The File Menu also provides a safe and proper method of terminating the Map Editor application. On selection, this option opens a pull-down menu as illustrated below:



The File menu pull-down menu has the following options:

Option	Description
Load...	Activates the configuration window from where you can configure and load a new map
Load MAL format...	Enables to load a map in the Oracle Utilities Mobile Workforce Management MAL format
Save MAL format...	Enables the currently loaded map to be saved in Oracle Utilities Mobile Workforce Management MAL format
Load HIP format...	Enables to load a map in the Oracle Utilities Mobile Workforce ManagementHIP format
Save HIP format...	Enables the currently loaded map to be saved in Oracle Utilities Mobile Workforce Management HIP format
Load Raster...	Loads a raster map
Close Raster	Unloads the currently used raster map from Map Editor
Print Map	Prints the currently loaded map
Edit Config...	Allows to create or edit map configuration
Edit Current Speed...	Allows to create or edit speed configuration when traffic layers are not in use
Quit	Closes the Map Editor application

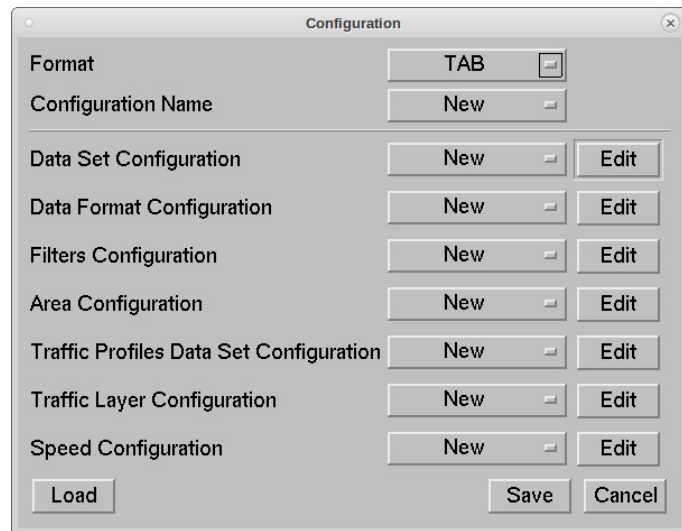
Load

Map data from third party map data providers in non-standard format can be loaded into Map Editor using the **Load** option.

After completing the load operation an Info window similar to the one illustrated in the image below pops-up displaying the map name and the number of nodes, polypoints and links that it is made up of.



To load a vector map for the very first time, select *File, Load* from the Main Menu. This will display the following “configuration” dialog.



You can use this dialog to choose the map format, data and traffic profiles set(s), define the data format, configure the filters and traffic layers.

Clicking on the *Edit* button adjacent to the Configuration option displays the corresponding edit dialog. Each configuration item can be saved individually.

User should only use one option to define link speeds: traffic profiles data or Speed Configuration, not both.

Area and Speed Configurations do not depend on data format and are stored in the default <configPath> directory. Data Set, Traffic Profiles, Data Format and Filters and Traffic Profiles Data and Layers Configurations are stored in the Format specific configuration directories such as configPath/MIF, configPath/TAB or configPath/Shape which are created by Map Editor depending on the selected format. After defining all the Configurations, the Master Configuration must be saved by clicking on the *Save* button. A list of all the files created by you are saved in the Master Configuration file.

Note: You cannot Create new Area or Speed Configurations until the data has been loaded.

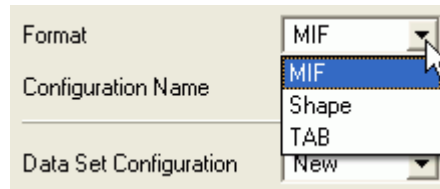
Finally, select the *Load* button to load the data from the selected configuration file.

The steps to create the Configuration file and to load a map are described in more detail in the following sections.

Format

Selecting the Map Data Format

1. Select an appropriate map data format from the drop-down list.



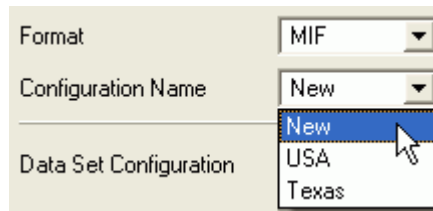
The Map Editor constructs maps that are compatible with Oracle Utilities Mobile Workforce Management, using commonly available map data formats such as MIF/Shape and TAB.

Configuration Name

Setting the Master Configuration Name

All the saved configurations that are available for the selected map format are listed in the Configuration Name pull-down menu.

1. Select **New** to create the Configuration from scratch, or load an existing Master Configuration file by selecting its name from the available list.



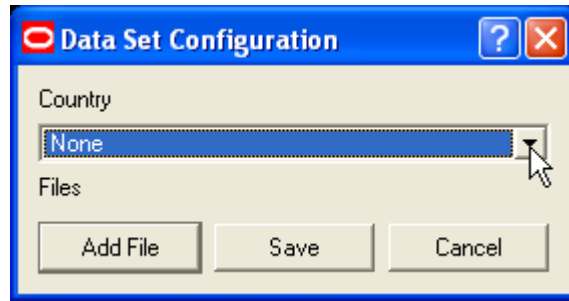
Data Set Configuration

The first step in Data Set Configuration is to choose a country for proper map projection. This is a mandatory parameter and is used to accurately represent a map in two-dimensional manner.

Selecting the Country

1. Select the required country name from the *Country* pull-down list.

Note: If the country you require is not in the list or your choice does not give you the expected view of the map, please contact Oracle support.

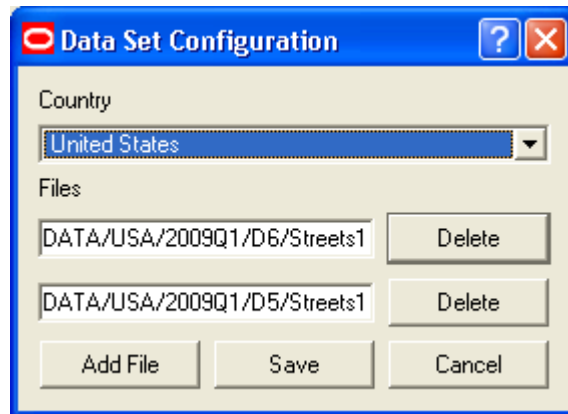


Selecting the Map Data Files

1. Select *Add File* to specify the path and name of files that form the map data.

This will open the standard File Browser dialog from where you can make the appropriate data file selections.

Note: The data files that you select here must be in the same format (MIF, Shape or TAB) as that specified for the Map Data Format selection.



2. After making the data file selections, if you want to remove any of the selected files from the list, click the *Delete* button adjacent to the file path.
3. Select *Save* to save the Data Set Configuration.
4. Select *Cancel* to discard all selections and go back to the master Configuration window.

Data Format Configuration

Data Format Configuration enables Map Editor to correctly interpret the selected data set(s). Data belonging to fields that are required to create a valid link for a map must be identified and matched to corresponding internal Map Editor link parameters.

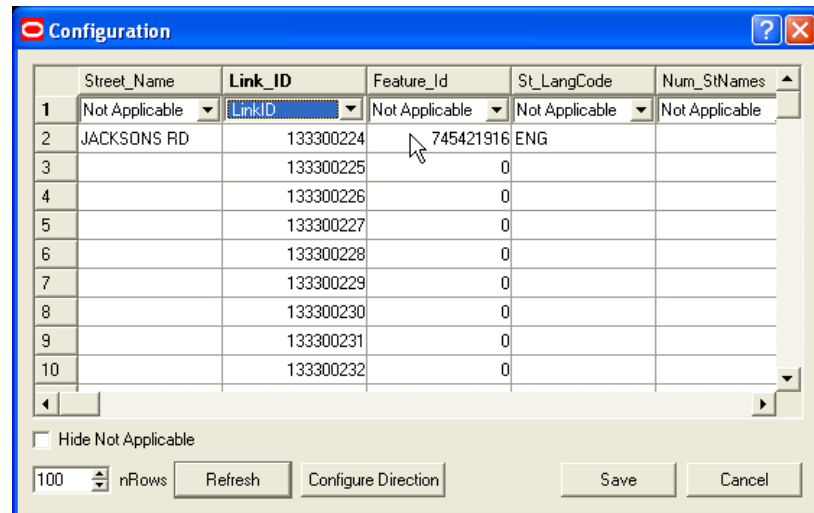
Note: Data Format cannot be configured in the absence of valid Data Set(s).

Loading Associated Data Sets

1. From the master Configuration window, Select the *Edit* button adjacent to the *Data Format Configuration* pull-down list.

If Data Set file(s) are not configured then the Data Format Configuration will not proceed and an Error message similar to “Data Set needs to be loaded” will be displayed.

When the configured Data Set is loaded successfully, then the Data Format Configuration Dialog illustrated in the following image will be displayed.



Data Columns Row and Map Editor Fields Row

In this window the Data column names are displayed in the header row and the Map Editor field names are displayed in the first row of the table.

Matching Map Editor Fields to Data Columns

The Data columns that should to be loaded into Map Editor must be matched to the corresponding Map Editor fields in the Data Format Configuration window. All unmatched Map Editor fields are set to “Not Applicable” in this table. In the above picture only a single Map Editor field *LinkID* has been matched to the corresponding Data column *Link_ID*.

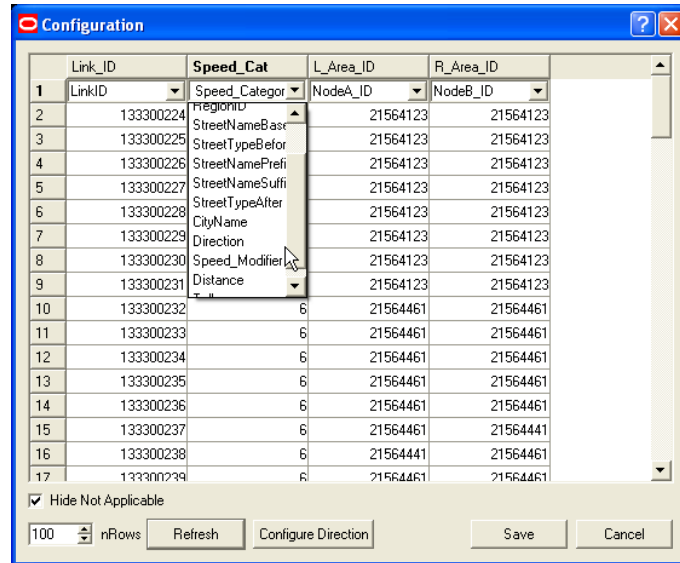
Map Editor has the following fields, out of which *LinkID*, *NodeA_ID*, *NodeB_ID* and *Speed_Category* are mandatory:

- RegionID
- StreetNameBase
- StreetTypeBefore
- StreetNamePrefix
- StreetNameSuffix
- StreetTypeAfter
- CityName
- Direction
- Speed_Modifier
- Distance
- Toll
- LinkID
- NodeA_ID
- NodeB_ID
- Speed_Category

Note: The current Map Editor will not be able to save the Data Format Configuration, if the mandatory fields are not set.

1. Set the mandatory Map Editor fields as illustrated in the image below:

Note: The Data Column names may vary based on different Map Data Providers.



Once a Map Editor field is associated with a data column, it is removed from the drop-down list.

Note: Map Editor is capable of generating the full street name even from data sets where the street names are supplied in five different data columns. If the data set contains a full street name, the corresponding data column should be matched to the Map Editor field, *StreetNameBase*.

2. “Hide Not Applicable” can be enabled to display only the matched Map Editor fields

Controlling the Number of Displayed Data Rows

In the Configuration window, the first 100 rows of the map data are displayed by default. This number can be modified using the *nRows* spin button control.

1. Specify the required number of rows that must be displayed on the table by either typing into the *nRows* field or using the up and down spin button control.
2. Select *Refresh* to apply the change.

Configuring the Link Travel Direction

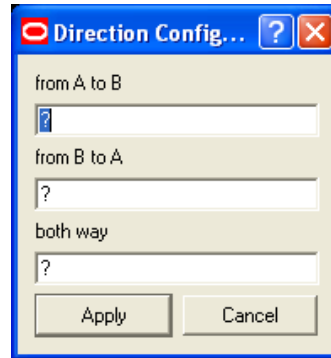
A link connecting node A and node B in a vector map can have the following direction of travel:

- node A to node B
- node B to node A
- Bi-directional
- no travel allowed at all

If the Map Editor field, *Direction*, is not associated with a Data Column, then bi-directional travel will be allowed by default on all the loaded links.

If direction is required you must configure it, because Data Column values in different third party providers' maps can have different interpretations. To correctly configure directions you need to refer to the map data documentation or to the provider of that data.

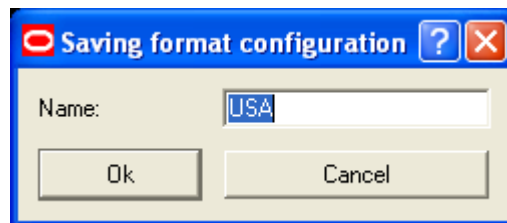
1. Match the Map Editor field, *Direction*, to the corresponding Data column.
2. Select this column by clicking on the column header.
3. Select the *Configure Direction* button. It will bring up the following dialog box, where '?' indicates that the direction is undefined.



Note: An empty string is a valid value that can be used to configure directions.

Saving the Data Format Configuration

1. Select *Save* from the original Data Format Configuration Window.
2. In the resulting **Saving format configuration** dialog, type in a new name to save the Data format Configuration or select an existing configuration to overwrite it with the new changes.



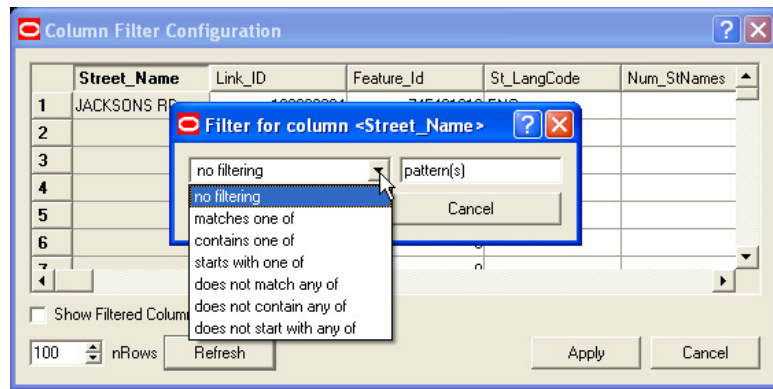
Selecting *Cancel*, will dismiss all the changes and take you back to the master Configuration window.

Filters Configuration

The Column Filters enable you to selectively display the Map Data by applying filters on the contents of any column.

1. Select the *Edit* button adjacent to the *Filters Configuration* pull-down list on the master Configuration window.

This will display the *Column Filter Configuration* window illustrated in the image below



2. Left Click on the header of the Column whose contents you wish to filter, and see the *Filter for column <selected column name>* dialog box as shown in the picture above.
3. Select one of the following seven filter options that will be listed under the drop-down list on the Left:
 - no filtering
 - matches one of
 - contains one of
 - starts with one of
 - does not match any of
 - does no contain any of
 - does not start with any of
4. To match the selected filter type, type in one or more strings separated by comma (,), into the *pattern(s)* text box on the right.
5. Select *Apply* from the *Filter for column <selected column name>* dialog box to apply this filter on the column contents
6. Repeat steps 2 to 5 for each of the Data columns whose contents must be filtered
7. Optionally enable *Show Filtered Column* to display only those columns on which filtering is applied.
8. Optionally Modify the number of rows that are displayed on the table by specifying a different value in the *nRows* field and selecting the *Refresh* button.
9. Select *Apply* from the *Column Filter Configuration* window to Save the Filter Configuration.
10. In the resulting *Saving filter configuration* dialog, type in a new name to save the Filters Configuration or select an existing configuration to overwrite it with the new changes

Note: Only links, satisfying all the filtering criteria, will be loaded into the Map.

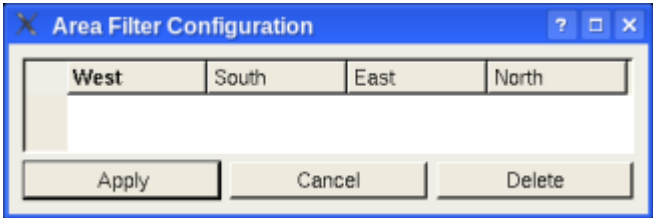
Area Configuration

The Area filter allows you to load links within a limited area. This area is defined using a set of (overlapping) rectangles. While the Data Set, Data Format and Filters configurations described in the previous sections can be created without a whole map being loaded into memory, the Area Configuration requires a vector-map to be loaded. Area can not be configured when an Oracle Utilities Mobile Workforce Management map is loaded as the *Edit* option is disabled for Oracle Utilities Mobile Workforce Management maps.

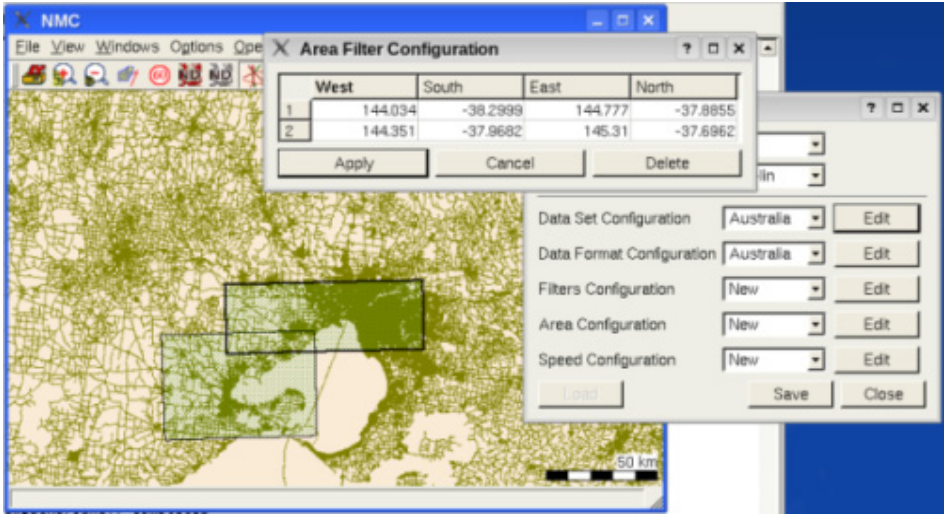
To proceed with an Area Configuration:

1. Select *File, Edit Config* from the Main Menu.
2. If the *Load* button is disabled on the resulting *Configuration* dialog, then a Vector Map is already loaded, else select *Load* to load the Vector Map using the already defined Data set and Data format configurations.
3. The Vector Map should now be displayed on the Map Editor display. If not, enable the Links display by selecting *View, Links* from the File menu.
4. After the Vector Map has loaded successfully, select *New* from the *Area Configuration* pull-down list and Click on the adjacent *Edit* button.

This will bring up a blank Area Configuration dialog box similar to the one illustrated in the image below, containing “West”, “South”, “East” and “North” as placeholders for coordinates.



Identify the area on the Vector Map display that you want to configure and enclose this with multiple overlapping rectangles.



5. Left Click and Drag to draw a rectangle around the area that you want to configure. You can use multiple overlapping rectangles to cover the area completely while avoiding unwanted areas.

The Area filter Configuration dialog will display as many rows as the number of rectangles on the Map display area.

6. You can select a rectangle by selecting its corresponding row on the Area filter configuration dialog. The selected rectangle will be highlighted with a bold border on the Map display.

Once created the Rectangles cannot be adjusted, but can be deleted and recreated again.

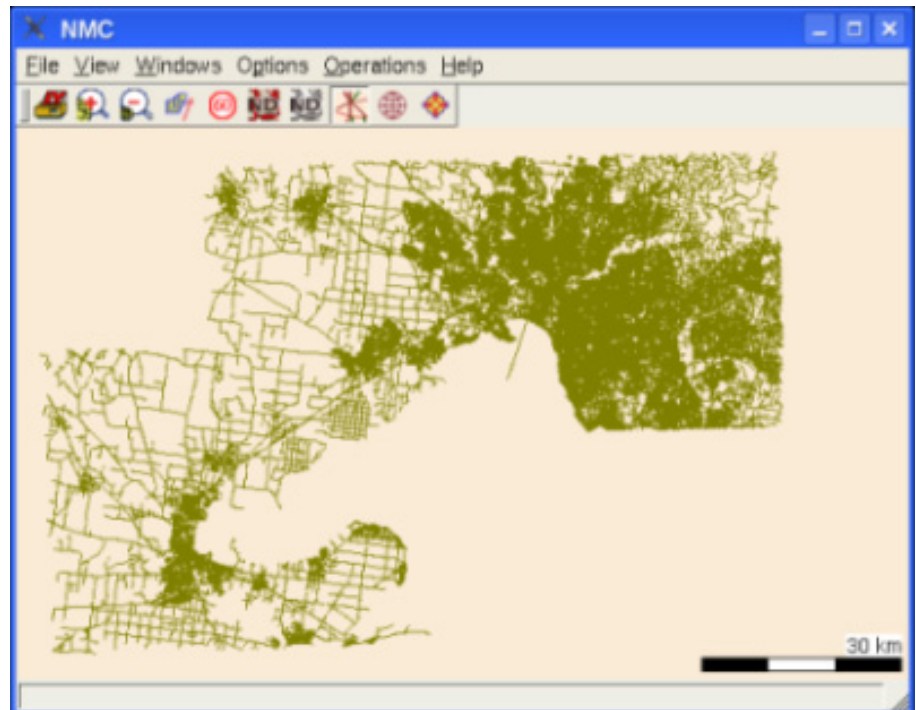
7. You can optionally select *Delete* to remove the selected rectangle.

8. Finally save the Area Filter configuration and return to the master Configuration window by selecting *Apply*.
9. In the resulting *Saving area configuration* dialog, type in a new name to save the Area Configuration or select an existing configuration to overwrite it with the new changes

The picture above shows the area configured as two overlapping rectangles. Once the configuration is saved, the rectangles are removed from the screen.

10. Select *Save* from the master configuration window to save the master configuration.
11. Reload the same Map using the saved master configuration by selecting File, Load from the Main Menu.

Observe that only links within the selected area are loaded now.

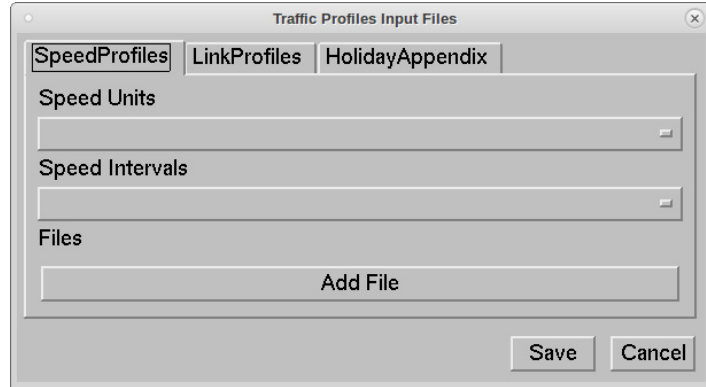


Note: The Column and Area filters can be used concurrently to create a map of the required level of detail and area. **For Example:** It will be more resource efficient to initially load only level 1 and 2 links for the larger map area, create the desired area configuration using the displayed map image, modify the column filter and then reload the map for the smaller area with the required higher level of detail.

Traffic Profiles Data Set Configuration

HERE Traffic Patterns is provided in a .csv format and represents 3 years of history of average road speeds. In addition, a Holiday Appendix is provided to list a country's major holidays and surrounding days where the traffic patterns are impacted (for example, Memorial day in the US is the last Monday in May and there is less traffic due to the absence of work-day commuting, but more traffic due to recreational travel).

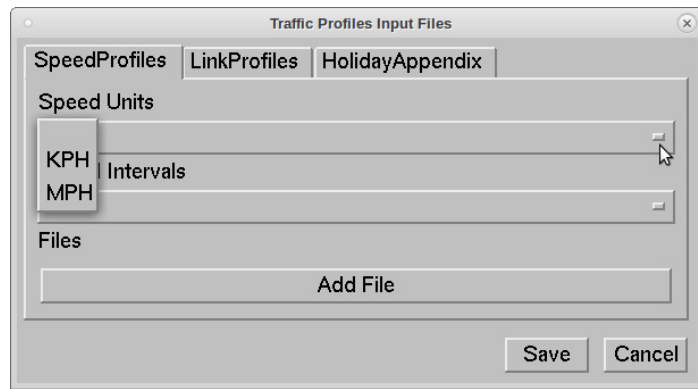
Clicking **Edit** button next to **Traffic Profiles Data Set Configuration** will bring up the following window dialog. The configuration can be saved after Speed Profiles and Link Profiles are properly specified. Loading Holiday Appendix is not mandatory. Select **Cancel** at any stage to discard all selections and go back to the master **Configuration** window.



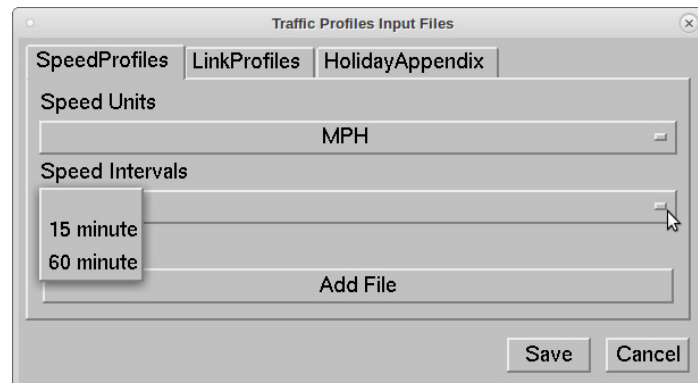
Loading Speed Profiles

The first step in Traffic Data Set Configuration is to choose Speed Units and Intervals. These are mandatory parameters and are used to read data in traffic data sets. Make sure that the Speed Units and Intervals you choose match the description of the files you are going to load.

The Speed Units can be selected from two options: KPH (kilometers per hour) and MPH (miles per hour), see picture below.

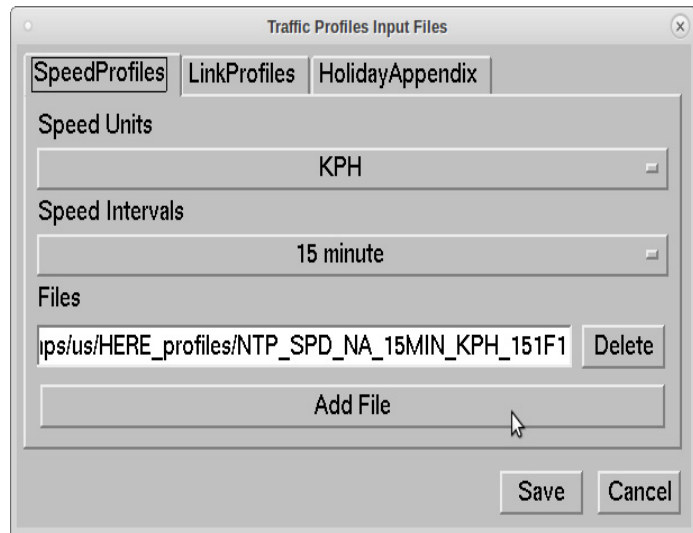


You can select 15 minute or 60 hours Speed intervals, see picture below.



When Speed Units and Interval are selected, finally, select *Add File* to specify the path and name of files that contain speed profiles.

This will open the standard File Browser dialog from where you can make the appropriate data file selections. User can add or remove previously added files as needed.



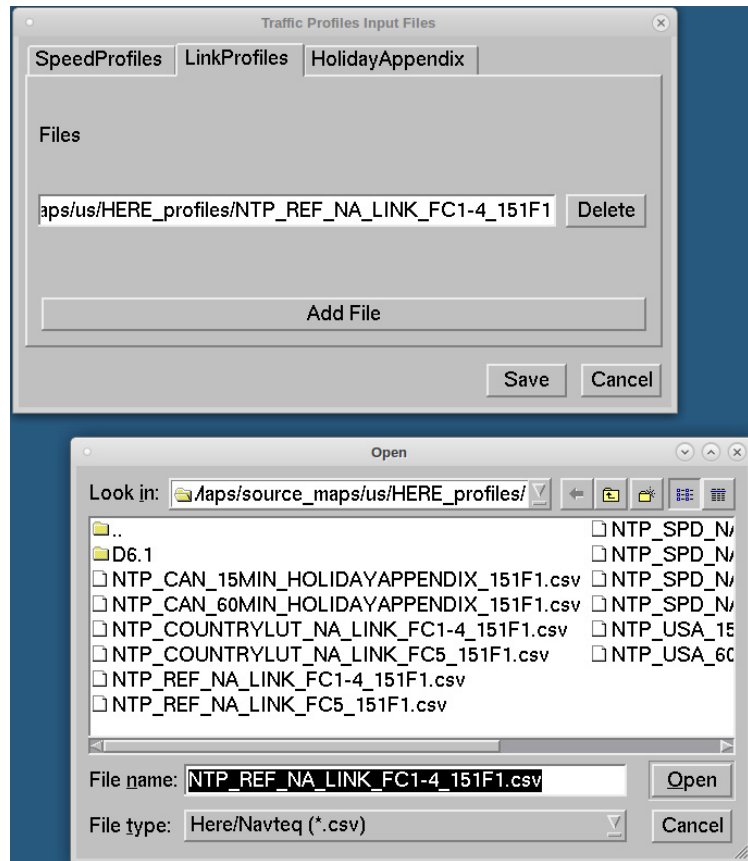
Attempt to save file now without adding link profiles will cause the following alert, all changes will be lost and user will be returned to master configuration edit. You will have to start over again.



Loading Link Profiles

To load Link Profiles select **LinkProfiles** tab and click **Add File**.

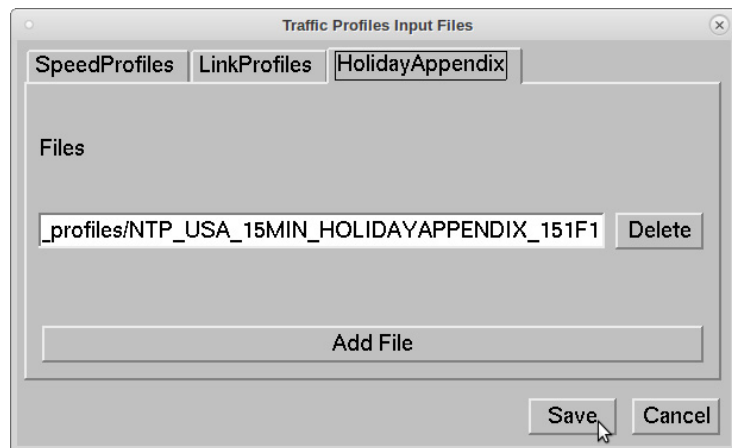
This will open the standard File Browser dialog from where you can make the appropriate data file selections. User can add or remove previously added files as needed.



After Link Profiles and Speed Profiles are loaded, you may save the configuration, or add Holiday Appendix and then save.

Loading Holiday Appendix

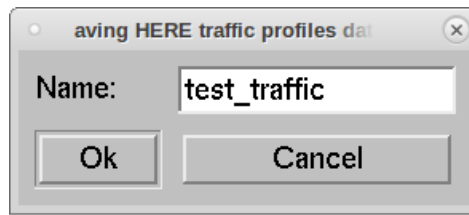
Finally, you can select which holiday appendix files will need to be loaded.



Saving the Traffic Profiles Data Set Configuration

Select **Save** from the original Traffic Profile Data Set Configuration window.

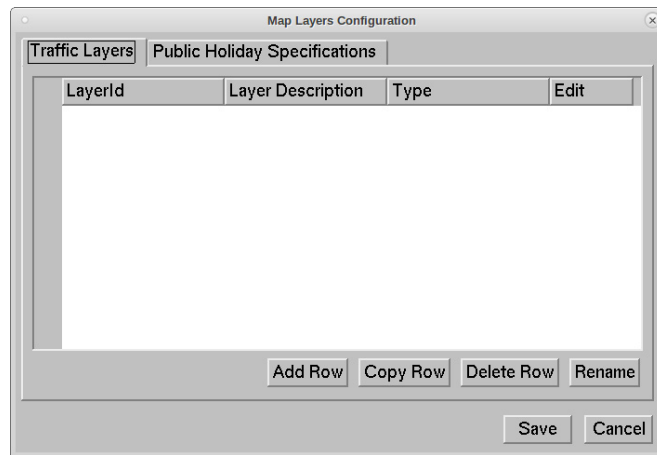
In the resulting Saving HERE traffic profiles data dialog, type in a new name to save the Configuration or select an existing configuration to overwrite it with the new changes.



Selecting *Cancel* will dismiss all the changes and take you back to the master Configuration window.

Traffic Layers Configuration

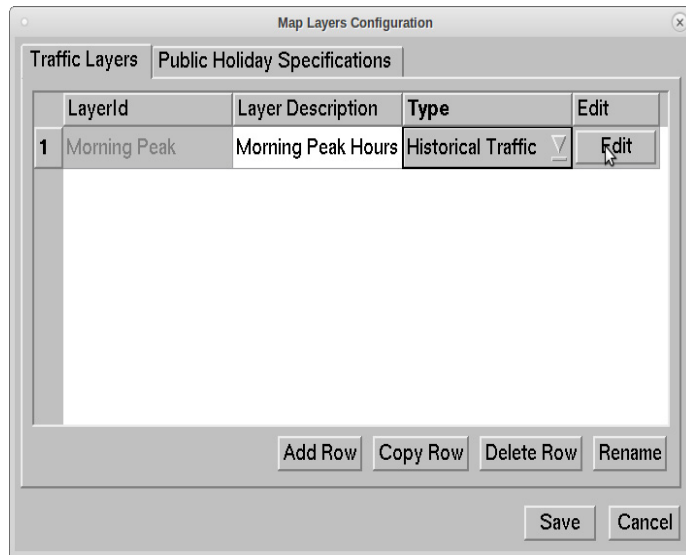
You can configure which traffic layers will be calculated by Map Editor. Clicking *Edit* button next to **Traffic Layers Configuration** will bring up the following window dialog.



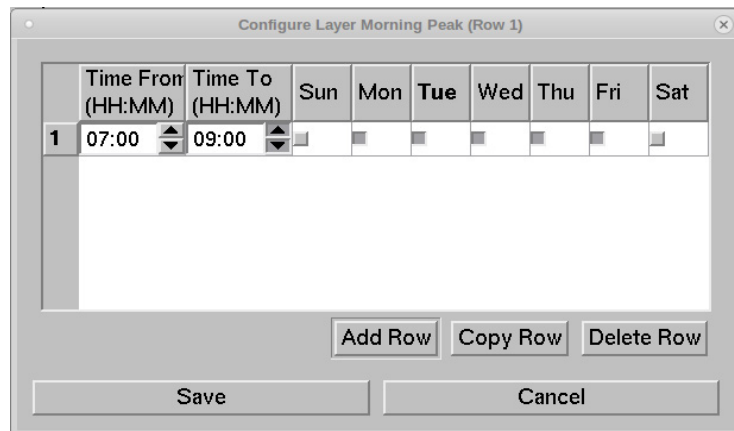
Here you can specify Traffic Layers and Public Holidays Specifications.

Creating Traffic Layer

To create a new Traffic Layer you should first “Add Row” and then fill in “LayerId” and “Layer Description”. There is only one Traffic Layer Type at the moment - “Historical Traffic”. After specifying ID and Description, create the layer itself by clicking button “Edit”. See the figure below.

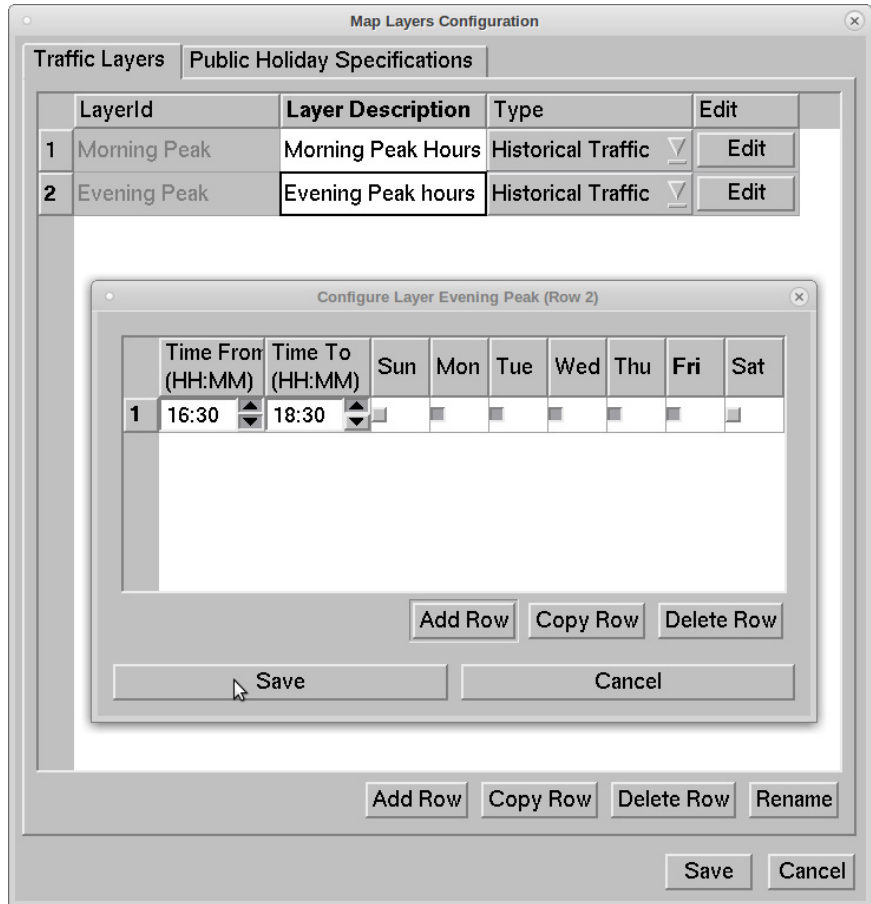


Clicking Edit will bring up the following dialog.

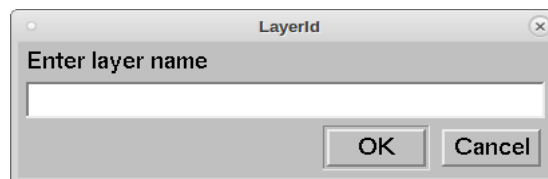


Here you should use the “Add Row” button to add first and following rows as needed and specify times and days, which will form this layer. You can copy and modify rows, or delete unnecessary rows. Once all specifications are inserted, the first layer configuration can be saved.

Now you can proceed to adding second layer and editing it. See picture below where we have two layers displayed “Morning Peak: and “Evening Peak”, where the “Evening Peak” layer is being edited.



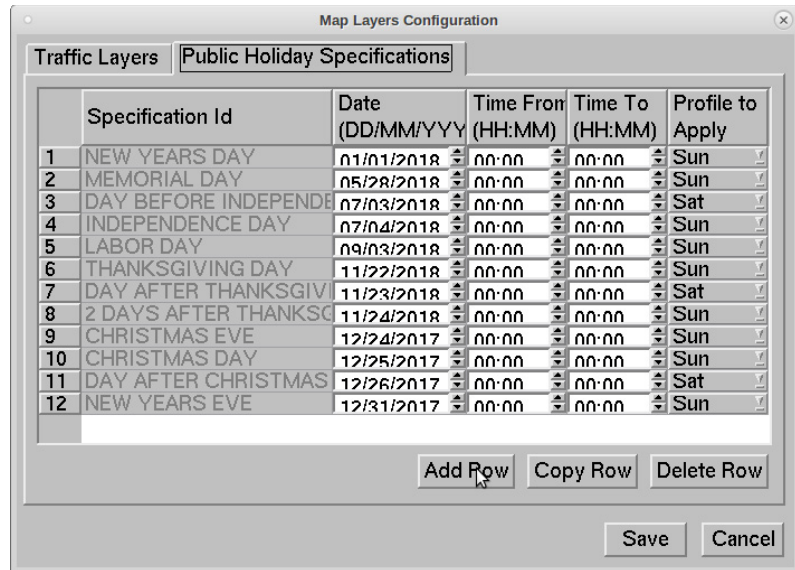
A new Layer can be added using *Copy Row* button in the “Map Layer Configuration” dialog. When a layer row is copied, the user is invited to name the new layer to be created.



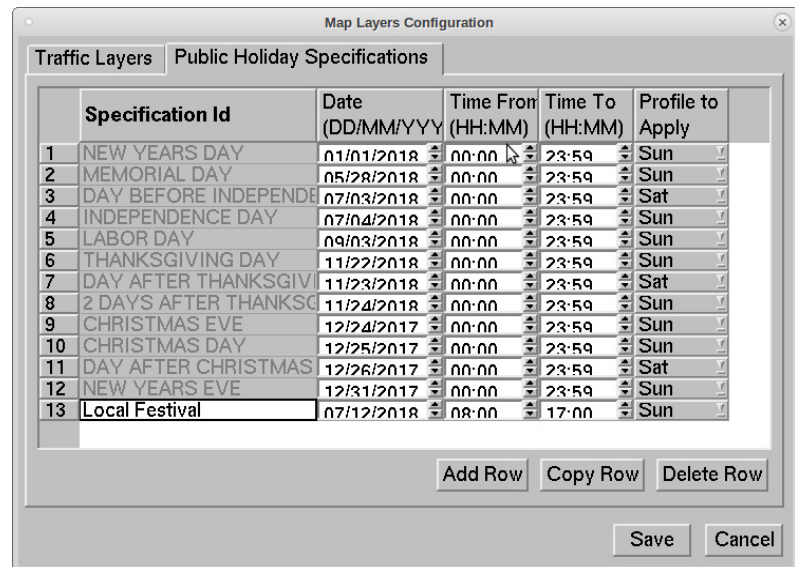
As in traffic profiles data sets *Save* and *Cancel* buttons apply to the whole dialog, so pressing “Cancel” would reject changes for all the specifications: Traffic Layers and Holiday.

Public Holiday Specifications

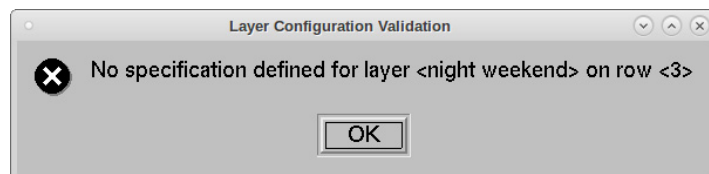
Public Holiday Specification IDs are pre-filled from map data.



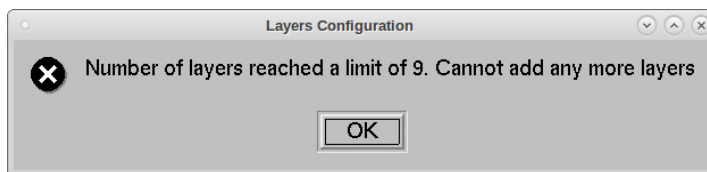
Holiday Specifications rows can also be added, removed or copied. The picture below shows added new local holiday “Local Festival” which is held on 07/12/2017, for this date the Sunday profile will be applied.



Map Editor does not allow to save overlapping layers specifications or layers with empty specifications. Map Editor will give corresponding error messages on attempt to save invalid Traffic Layers Configuration. For example:



Currently, Scheduler supports up to 10 layers, including the base layer. Therefore, Map Editor does not allow to save more than 9 Layers. Attempt to save more than 9 layers will result in the following error:



Speed Configuration

You can configure link speeds by assigning speeds to the speed-categories associated with the links. Additionally, different speeds can be defined depending on the value or percentage stored in the “Speed modifier” field of a link. Speeds can not be configured until the system “knows” what the categories (and modifiers if any) are. Speed category and modifier lists can only be constructed by the Map Editor from the loaded map or previously created speed configuration file. A warning message will pop up on attempting to configure speed without speed categories being loaded into the system.

To proceed with a Speed Configuration:

1. Load the Map Data Set into Map Editor by selecting *File, Load* from the Main Menu. From the resulting Master configuration dialog, select the required configuration pointing to the required Data Set and select Load from this dialog.
2. Wait for the Map data to be loaded and enable the Links display by selecting *View, Links* from the File menu
3. Invoke the Edit Current Speeds configuration dialog by selecting *File, Edit Current Speeds* from the Main Menu.

This opens a blank *Speed Conversion* dialog box.

In this dialog, speed categories are set in rows and speed modifiers in columns. The speed categories are automatically derived from the loaded vector map. You must define a speed modifier for each of the available speed categories. The speed configuration file can not be saved until speed modifiers are defined for all speed categories in the table.

4. Click on the cell adjacent to the first speed category and enter the required speed modifier value.
5. Repeat step 5 for each of the speed categories in the table.
6. Select *Save* to save this Speed configuration.
7. In the resulting *Saving speed configuration* dialog, type in a *New* name to save the Speed Configuration or select an existing configuration to overwrite it with the new changes.
8. Select *Save and Apply* from the Edit Current Speeds configuration window to save and apply the speed configuration.

Once speed configuration is applied, the map links will be redrawn using corresponding colors from the Map Editor speed color legend.

Note: The Speed Conversion dialog can also be invoked by selecting *File, Load* from the Main Menu to open the Master configuration and then by selecting the *Edit* button adjacent to *Speed configuration* pull-down list.

Speed configurations created in this manner can only be applied by re-loading the data.

Load MAL format

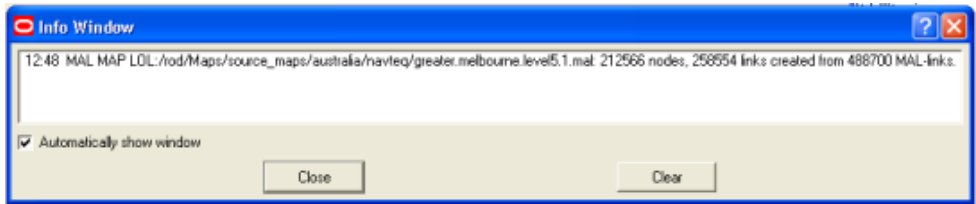
Map Editor can load and edit a map that was previously created in MAL format: individual links to be removed or modified. The resulting map can be saved in MAL or HIP format.

Select *File, Load MAL format* from the Main Menu.

In the resulting file browse window, locate and *Open* the required .mal file.

While the Map is being loaded its progress will be displayed within the *Loading .mal Map* dialog. This length of this operation is determined by the size of the map that is being loaded.

An Info window similar to the one illustrated below is popped up at the end of the Map Loading operation. It displays the map name and the number of nodes and links that were created from n MAL-links.



Save MAL format

The **Save MAL format** option allows you to save the currently loaded map into the Oracle Utilities Mobile Workforce Management supported map format, MAL.

If Link Speed configuration is not supplied then the map is created using default speed.

Note: Traffic Layers can only be saved in HIP format.

Load HIP format

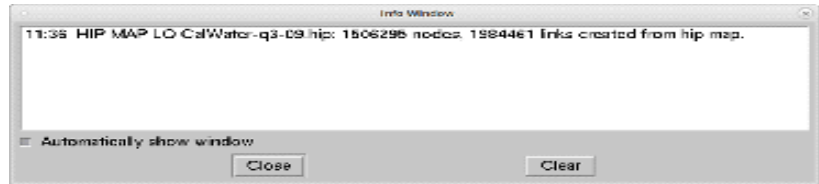
Map Editor can load and edit a map that was previously created in HIP format: individual links to be removed or modified. The resulting map can be saved in MAL or HIP format.

Select *File > Load HIP format* from the Main Menu.

In the resulting file browse window, locate and *Open* the required .hip file.

While the Map is being loaded its progress will be displayed within the *Loading .hip Map* dialog. This length of this operation is determined by the size of the map that is being loaded.

An Info window similar to the one illustrated below is popped up at the end of the Map Loading operation. It displays the map name and the number of nodes and links that were created from HIP map links.



Save HIP format

The Save HIP format option allows you to save the currently loaded map into the Oracle Utilities Mobile Workforce Management supported map format, HIP.

If Link Speed configuration or Map Traffic Profiles are not supplied then the map is created using default speed.

Loading Raster Map

The **Load Raster** option will cause a directory-selector window to appear, from which a directory, containing the raster map images can be selected (See section [Raster Map](#) on page 2-30 for more information on Raster maps). Map Editor is programmed to install a raster map using the files listed under the specified directory. Map Editor will display an error message if it was unable to install a raster map from the specified directory. The “Load Raster Map” option will overwrite the raster map specified within the Map Editor configuration setup.

Note: The loaded Raster maps are displayed only if the “Raster Maps” option is already enabled from the “View” Menu.

Closing Raster Map

The **Close Raster** option will erase the currently loaded raster map from the Map Editor display. See section [Loading Raster Map](#) on page 2-28 for details on loading Raster maps.

Printing Map

The Print Map option allows you to print the Map Editor display.

Quitting Map Editor

The **Quit** option provides the safest method to quit Map Editor.

On selecting the *File > Quit* option, Map Editor will exhibit either of the following two behavior:

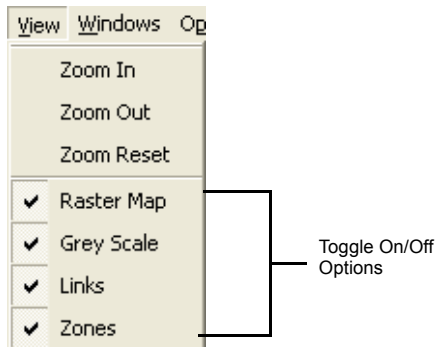
- Will open the “Closing Map File” confirmation Popup-window if the map was changed since the last Save operation.
- Will unconditionally close the Map Editor Application if the map has not been changed since the last Save operation.

Note: The unconventional method of closing the Map Editor Application with a Double Left Click on the Main Window Control

Menu icon at the top-left corner of the Main Window, carries the risk of losing all unsaved changes made to a loaded Map.

View Menu

The Map Editor View Menu enables selective display of map information. These menu options are explained in the following sections



Zooming In / Out

Increasing or decreasing the scale of the map display can be accomplished in any of the following ways:

- Selecting the **View > Zoom In/Out** option from the Main Menu.
- Selecting the “Zoom In”, “Zoom Out” buttons from the Tool Bar.
- Selecting Zoom In/Out option from the window local menu
OR
Pressing Shift ‘+’ and Shift ‘-’ from the keyboard to zoom in or out respectively.

The “Zoom In” option displays a smaller area of the map in a magnified form whereas the “Zoom Out” option displays a greater area of the map in a minimized form. The map distance scaling unit moves from kilometer to meter and vice versa with repetitive zoom in or zoom out operation.

Reset the map

Resetting the map displays the Map with the lowest level of magnification - that is, the way it is displayed when the map is initially loaded up. It cannot be zoomed out any further after this level.

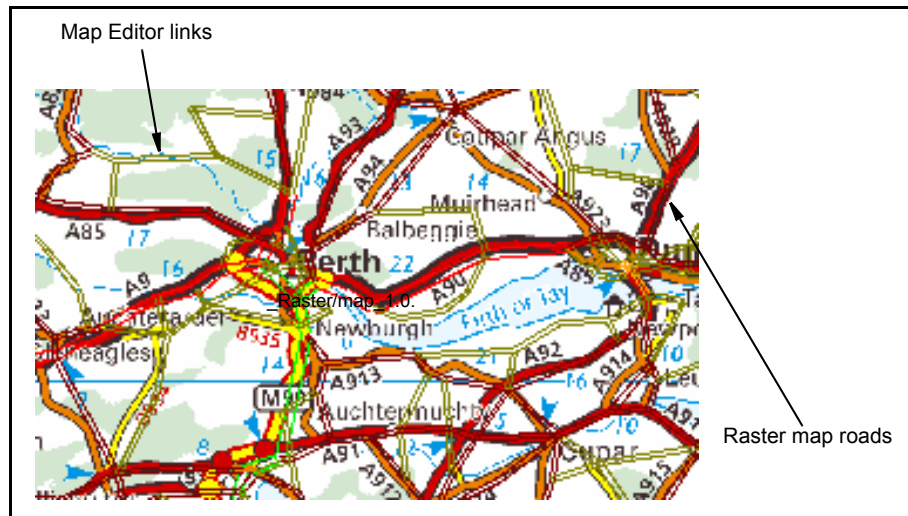
You can enable the Zoom Reset operation from:

- the Main Menu
- the Tool Bar
- the window local menu

Raster Map

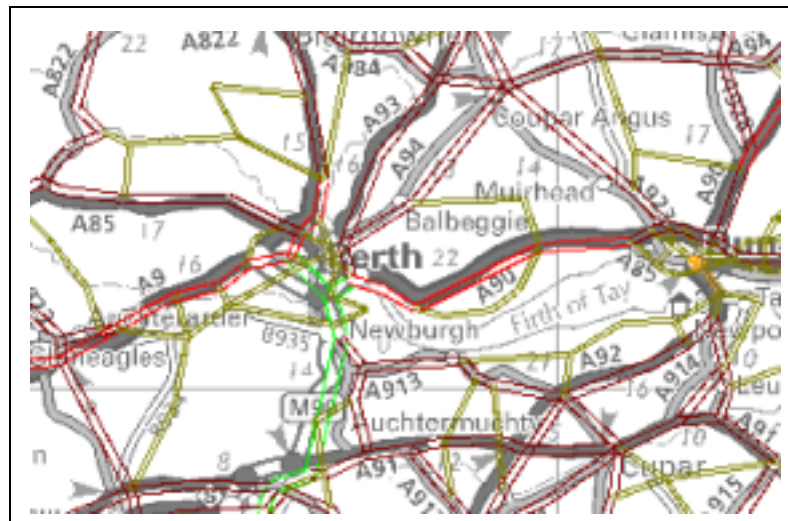
Raster map displays are replicas of the paper maps or road maps. Raster maps can be constructed from map data available from geo-data providers in different countries. Please contact your Oracle Utilities Mobile Workforce Management representative for more information on creating raster maps for a particular region. They provide the User with better visual information about geographical details of a region.

The Raster Map to be displayed on selecting the “Raster Map” option is determined either from the Raster map loaded from the “File > Load Raster” option (see section [Loading Raster Map](#) on page 2-28) or from the setting within the Map Editor configuration setup.



Note: A raster map display will reduce the clarity with which Map Editor map links will be displayed.

Greyscale



A grey scale map is nothing but a greyed out raster map (see section [Raster Map](#) on page 2-30 for more details on Raster Maps). Grey scale maps do not reduce the resolution of the overlaying map links displayed on the Map Editor display. Raster maps should be created and specified in Map Editor Client window configuration in order to be able to view grey Scale maps for a particular region. Please contact your Map Editor representative for further details.

Links

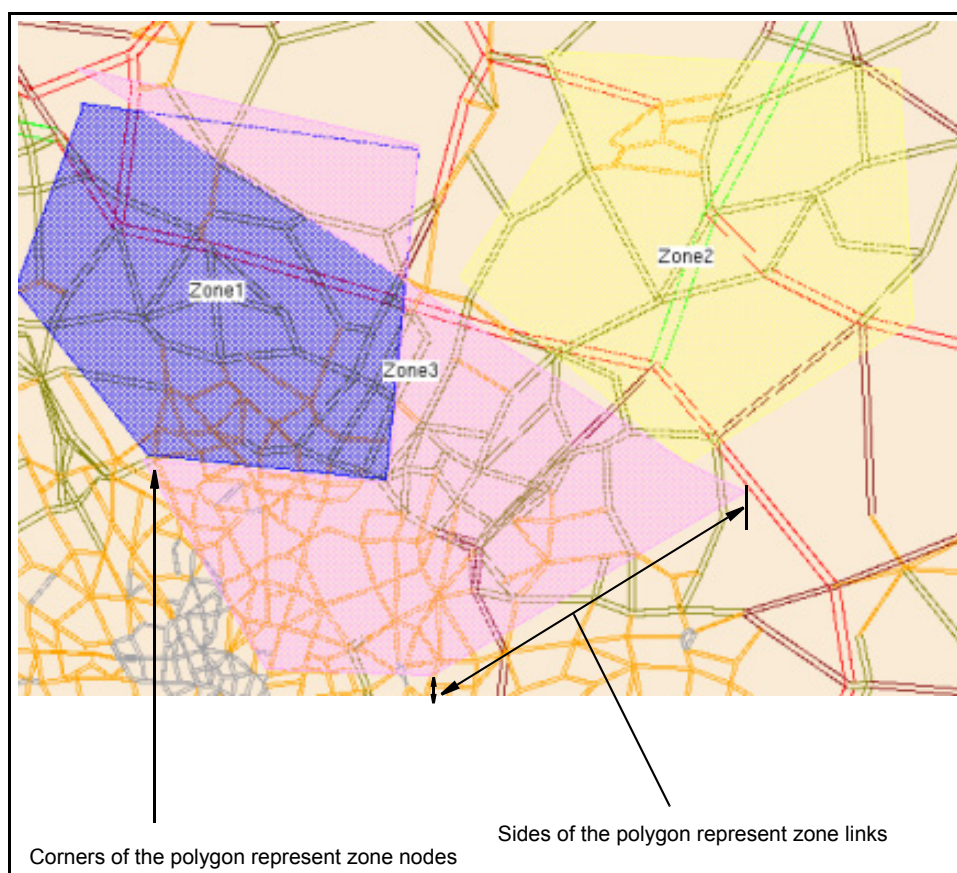
Map Links contain the travel information between locations and are represented by the straight lines joining two nodes within the map. All Links are One-Way Links, and have an inherent direction. The direction of a Link is from the starting Node to the ending Node, and can only be travelled in that direction. Two-Way Links are just two One-Way Links (in opposing directions) between two nodes.

The “Links” option displays only single links between nodes. Different colored Links illustrate different travel speeds. Also see [Speed Legend](#) on page 2-33.

Zones

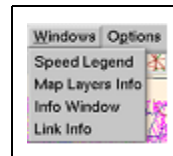
A zone is an imaginary polygon that is constructed of coordinates (usually Longitude/Latitude) within the map space known to Map Editor. The sides of a zone polygon are the zone links and the link ends are the zone nodes. On enabling the Zones option, all existing Zones (if any) will be highlighted in the Map Editor window (see the picture below). The area and color of all existing Zones can be edited. Please refer section [Edit Zone Operations](#) on page 2-38 for more details on editing zones.

Note: Zones will be displayed only if a zone file is specified in the Map Editor Client configuration file.



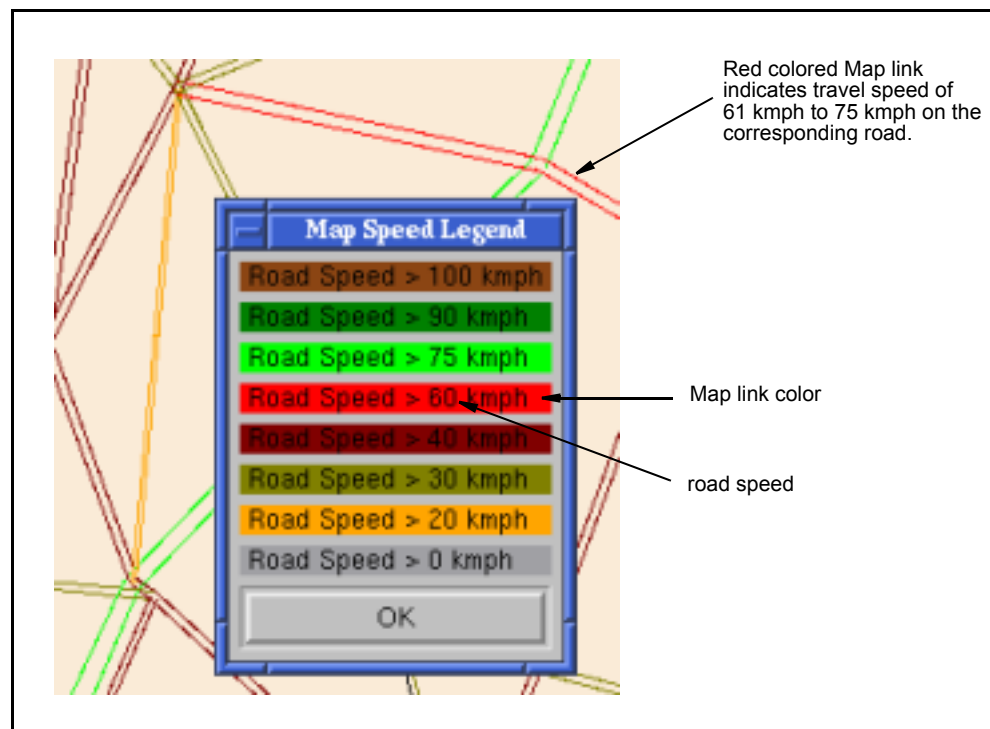
Windows Menu

The Map Windows menu enables selective display of map information. All options under this menu can be toggled on or off. These menu options are explained in the following sections.



Speed Legend

Speed Legends make it easy to identify the road speed by the Map-link color. On selecting the Speed Legend option, a window as illustrated in the figure below is popped up. This is a non-editable window displaying colored bars representing predefined road speeds and corresponding Map link colors. The bar speed indicates the Map-links travel speed and the bar color reflects the color used to draw Map-links having corresponding travel speed. This window can be dismissed with a Left Click on the 'OK' control button.

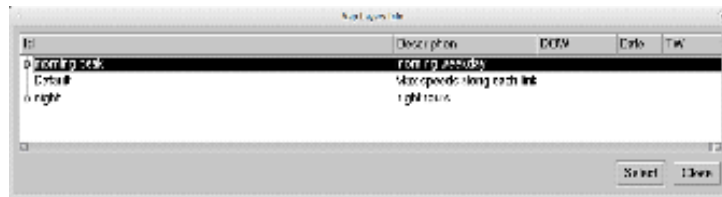


Map Layers Info

Once Map Layers are calculated, you can invoke Map Layers Info option that allows you to see links speed on a particular traffic layer. On selecting the Map Layers Info option, a window as illustrated in the figure below is popped up. This is a non-editable window displaying calculated layers, when a layer is selected, map window displays colored links, where colors represent speeds on that layer.

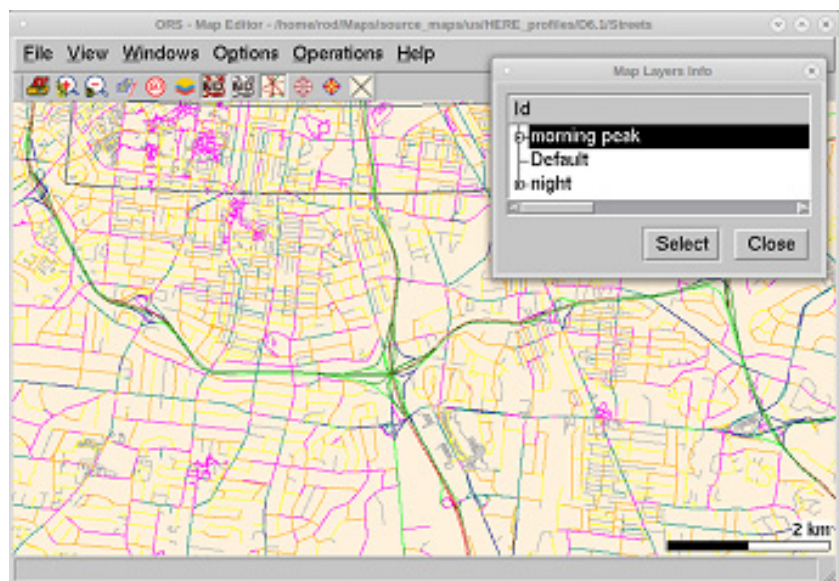
To select a layer, click the desired layer and then click “Select” button.

This window is dismissed with a click on the “Close” button.

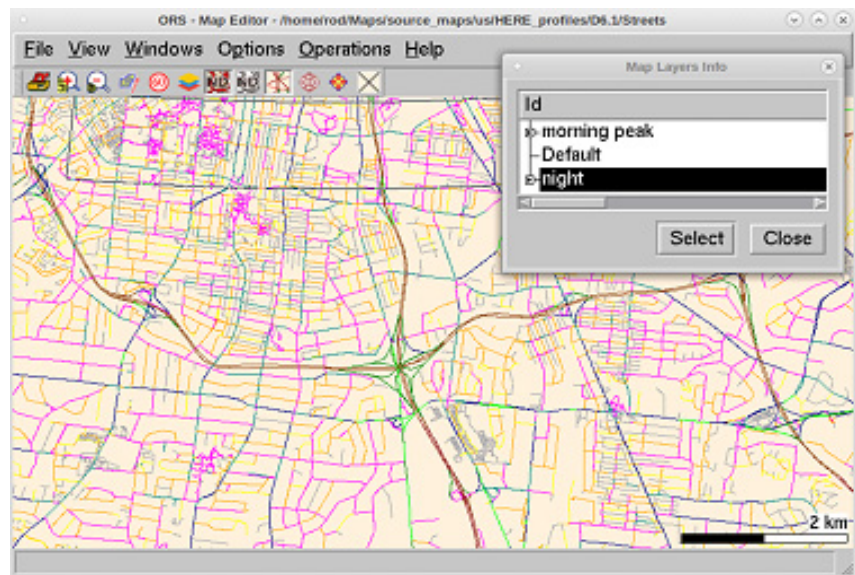


The link speeds on layers are colored according to “Map Speed Legend” representing predefined road speeds and corresponding Map link colors. Note that you can select both “Map Speed Legend” and “Map Layers Info” options at the same time.

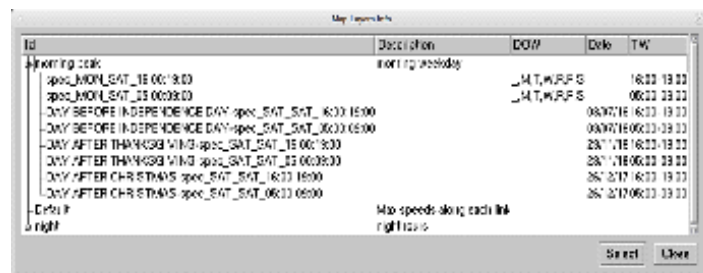
The two pictures below show link speeds on different layers.



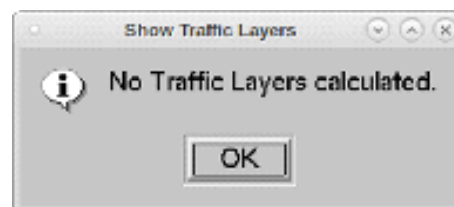
Observing the coloring of links on major freeways one can see that “Night” speeds are clearly higher than “Morning Peak” speeds.



The "Map Layers Info" window allows you to see time specifications that construct a layer. Left Double click on the selected layer will expand the layer as illustrated on the picture below.



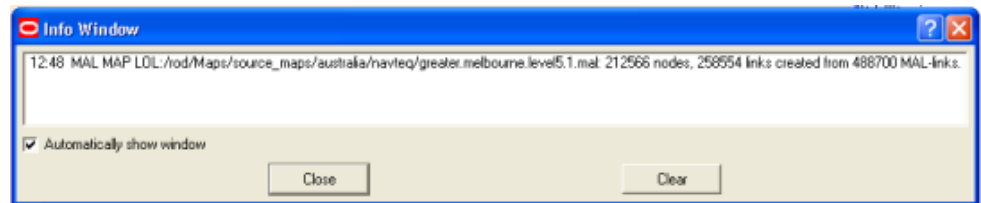
On attempt to show traffic layers when Traffic Layers are not calculated (Layers can be configured, but not calculated) the following message will be shown.



In this case you need to compress traffic layers by selecting "Compress Traffic Layers" in the Operations menu.

Info Window

The Info Window is used to display self-explanatory messages, describing a situation or the result of an operation in simple terms.



Automatically Show Window

The Info Window is displayed by default whenever there is a warning message or an error message, unless the *Automatically Show Window* option is toggled off. You can open this window at any time to see any messages since the last Clear operation by selecting **Windows, Info Window** from the Main Menu.

Clear

This will clear all messages, but leave the Info Window on display.

Close

This will close the Info Window, but will not clear existing messages.

Link Info

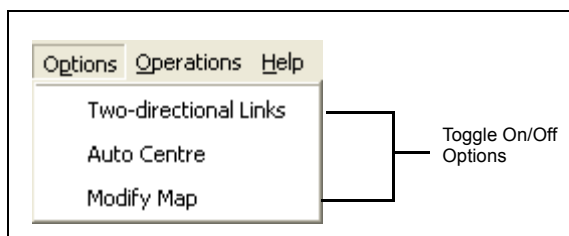
The Link Info option opens the pop up window illustrated in the figure below. In this case, it tracks the movement of the mouse within the map window. At any time Map Editor detects a link nearest to the mouse cursor and displays the following details for the link within the "Link Info" window:

Field	Description
Link	A character string representing the link name.
City	Name of City to which the Link belongs
Lon/Lat/X/Y	Positional co-ordinates at the cursor position.
Speed Cat	The Road Speed Category for the selected link
Speed Mod	Speed Modifier if any, applied on the Speed Category
Speed	The travel speed of the Link [units to match country (rounded to integer km/h)]
Time	The time it will take to travel this link, based on the current settings
Dist	The travel distance of the Link in Miles or Kilometers
Toll	The Multiplier penalty which is Multiplied by the matrixTollFactor value in the smAuto configuration.

Note: The Speed Cat and Speed Mod are populated only when the loaded map is not in Oracle Utilities Mobile Workforce Management MAL or HIP format.

Options Menu

The Map Options menu enables selective display of map information. All options under this menu can be toggled on or off. These menu options are explained in the following sections.



Two-directional Links

The "Two-directional Links" option displays both the links (in opposing directions, where applicable) between nodes. Please refer section [Links](#) on page 2-32 for more details on links. Enabling the "Modify Map" option will automatically enable the "Two-directional Links" option

Auto Centre

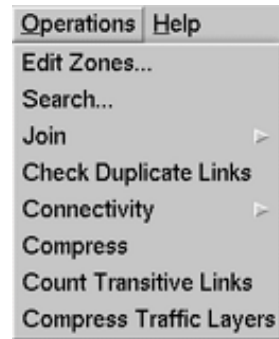
The Map Editor display area is very small in comparison to the map area covered by a well magnified map. Locating a link manually within a map can be very daunting. Map Editor provides the "Auto Centre" option which can be enabled to automatically position the map such that a selected link is at the center of the display area. Please refer to the [Search](#) on page 2-41 for more details on selecting a link.

Modify Map

The "Modify Map" option must be enabled to be able to Select Links. The selected Links can then be edited, deleted or deselected. When "Modify Map" is enabled, the Map will automatically enable the "Two-directional Links" option and display. Please refer section [Links](#) on page 2-32 for more details on links.

Operations Menu

The Operations menu allows the User to do certain operations on the map, some of the operations give information about the map (for example: "Search", "Check Duplicate Links", "Count Transitive Links"), while other operations will actually change the map (for example: "Join", "Compress", "Compress Traffic Layers". The operations that change a map, cannot be undone, to restore a map to its original state you will have to reload it.



These menu options are explained below.

Edit Zone Operations

This option allows the User to create, modify or delete zones.

On selecting the "Edit Zones" option from the Operations menu a window as illustrated in the figure below is popped-up.

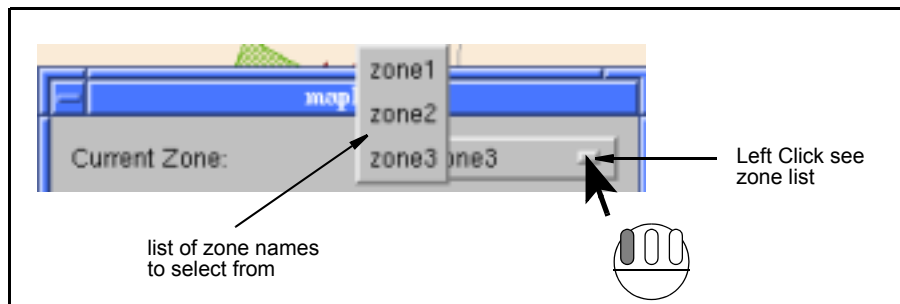


The following options and controls are provided within this window:

Option	Description
Current Zone	Identifies the currently active zone and facilitates alternate Zone -selections.
Create Zone	Facilitates the creation of new zones
Edit Zone	Facilitates the modification of selected zone.
Delete Zone	Facilitates the deletion of selected zone.
Save	Writes the newly created/modified zone data into the disk file.

Selecting Zone

"Current Zone" displays the currently selected zone and also provides a pull-down list of available zone names to select from. All zone operations are performed only on a selected Zone.

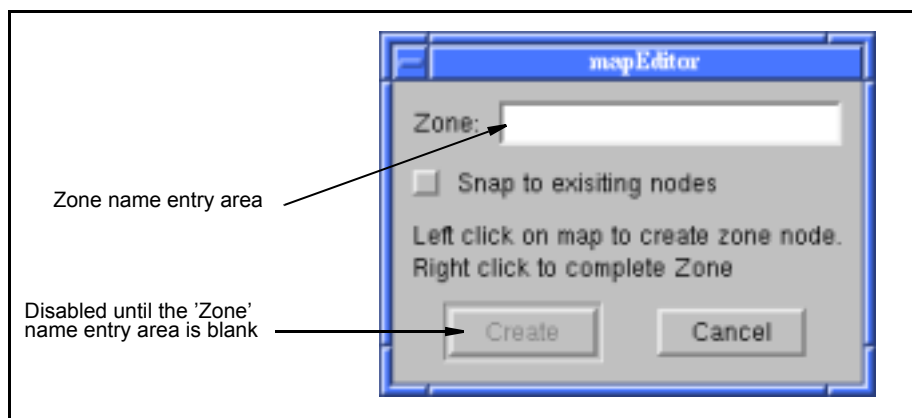


A zone can be selected by:

- Left Clicking the small control on the push button control adjacent to the "Current Zone" label as illustrated in the figure above.
- Left Clicking the required zone name from the resulting zone list pop-up window.

Create Zone

On selecting the "Create Zone" button from the window illustrated under [Edit Zone Operations](#) on page 2-38, a window as illustrated in the figure below is popped up.



1. Type a new zone name into the 'Zone' name entry area.
2. The 'Snap to existing nodes' option can be enabled to discourage gaps between adjacent zone areas. With this option enabled, if a new zone node is plotted on the display area, mE will do either of the following:
 - a. Automatically reposition the new zone node, such that it snaps to the closest zone node (proximity between zone nodes is calculated internally by mE) belonging to an adjacent zone.
 - b. Leaves the new zone node position unchanged, If there are no other zones in its close proximity
3. Left Click on the 'Create' button to create a zone with the name specified in step (1) or 'Cancel' button to cancel the zone creation operation.
4. Identify the map area that needs to be marked as a separate zone and plot the zone nodes (using Left Clicks) sequentially on the circumference of this area. Zone links are automatically drawn between the current node and the previous node.

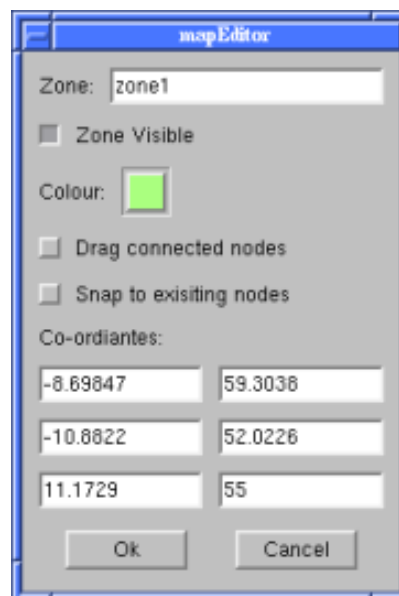
5. Right Click anywhere on the map display area to create the final link between the first and last zone nodes.
6. Left Click on 'Save' (see [Save](#) on page 2-41) to save the zone details or 'Close' (see [Close](#) on page 2-41) to discard the details.

Zones are visible only if the 'Zones' Option is enabled (see [Zones](#) on page 2-32).

Note: A maximum of 64 coordinate are allowed to specify a polygonal zone area. Additional coordinates specified will be ignored. Also a zone file can have a maximum of 256 entries.

Edit Zone

The area and display color of existing zones can be modified from the window illustrated in the figure below. This window can be invoked by Left Clicking on the "Edit Zone" button from the window illustrated under [Edit Zone Operations](#) on page 2-38.



The following options and controls are provided within this window:

Option	Description
Zone	Displays the name of the selected zone. This value cannot be edited.
Zone Visible	This option is enabled individually for each zone. If this option is disabled for a zone then that zone will not be visible at any time except when it is the currently selected zone. This feature comes in handy especially when there are multiple overlapping zones to work with.
Color	Facilitates selection of a zone display color from a range of different colors.
Drag connected nodes	Enables two or more zone nodes that are snapped together, to be dragged around as a single unit. This can be done by enabling the option, Left Dragging the connected nodes to alter the zone area.

Option	Description
Snap to existing node	If enabled, snaps the point of selection on the map to the closest node belonging to a different zone.
Coordinates	Displays the Latitude and Longitude coordinates for each zone node used to construct the zone. Different values can be typed into these fields.

In order to edit an existing zone

1. Select the zone from the window illustrated under [Edit Zone Operations](#) on page 2-38. See [Selecting Zone](#) on page 2-39 for details on selecting a zone.
2. Left Click the "Edit Zone" button on the window illustrated under [Edit Zone Operations](#) on page 2-38.
3. From the resulting window alter the zone display color and alter the zone area by manually dragging the zone nodes or links or by typing different Co-ordinates values.
4. Left Click on 'OK' to accept the changes and on 'Cancel' to reject the changes.
5. Left Click on 'Save' (see [Save](#) on page 2-41) to save the zone details or 'Close' (see [Close](#) on page 2-41) to discard the details.

Delete Zone

On selecting the "Delete Zone" button from the window illustrated under [Edit Zone Operations](#) on page 2-38, the currently selected zone will be deleted (see [Selecting Zone](#) on page 2-39 for details on selecting a zone).

Save

This option saves the changes made to the zone file specified in the Map Editor Client configuration file and closes the window illustrated under [Edit Zone Operations](#) on page 2-38. Edits to existing zone data are updated and new zones are appended at the end of the zone file. If a zone file is not specified within the Map Editor Client configuration file, a new zone file named "zonefile" is created and all the newly created zones are appended to this file.

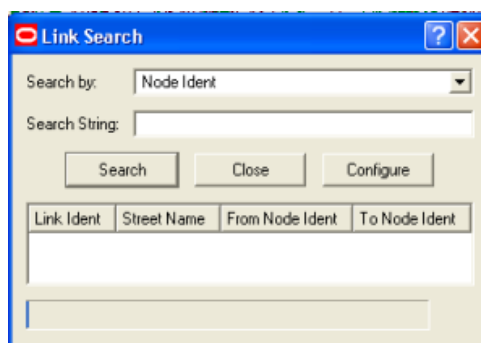
Close

Rejects all unsaved values and closes the window illustrated under [Edit Zone Operations](#) on page 2-38.

Search

The Search Option in the Operations menu initiates a map link search according to the search criteria specified for a particular search item. Only one search criteria can be specified at a time. Wildcards cannot be used within search criteria. The results of the search will be displayed in the lower half of the Link Search window. All the map links returned by the search are highlighted in the Map Display Area.

On selecting the "Search" option from the Operations menu a "Link Search" dialog window as illustrated in the below figure is displayed. The following sub sections will detail the features of the link search window.



Specify Map data column, on which to apply the search (Search by)

The link search can be performed on one of the following four map data columns:

Column	Search Results
Street Name	Returns all links containing matching Street Name pattern
City Name	Returns all links containing matching City Name pattern
Node Ident	Returns all links containing matching Node Ident pattern
Link Ident	Returns all links containing matching Link Ident pattern

The map data column, on which the search must be performed should be selected from the "Search By" pull-down menu.

Specify the search pattern (Search String)

A search pattern must be typed into the text entry box adjacent to the "Search String" label (please refer to the figure illustrated under section [Search](#) on page 2-41), before initiating a map search operation.

Map Editor will search for the specified pattern in all instances of the map data within the map file (see [Specify Map data column, on which to apply the search \(Search by\)](#) on page 2-42) and return either, a list of matching links or a warning message if there are no matching links.

Link search patterns:

- are case insensitive.
- can be partial matches, that is searching by "Avenue" will match "Windsor Avenue".

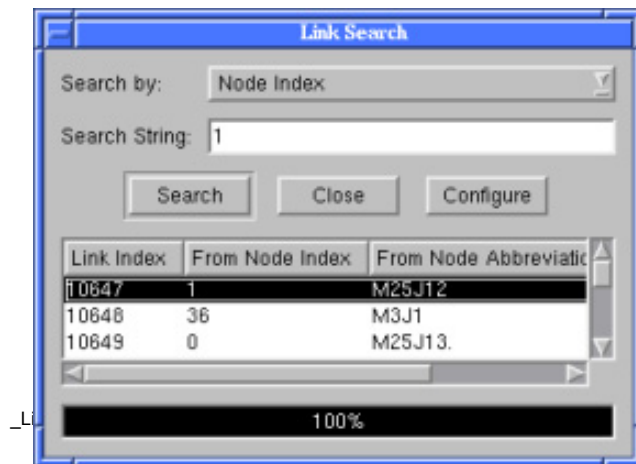
All links returned as a result of the link search operation will be highlighted in blue (by default) on the map. Auto centering can be enabled to bring a link selected from the link search window into view at the center of the map display area.

Search Button

The "Search" button should be selected to start the search. A Left Click on the "Search" button will trigger Map Editor to search for the specified pattern within the specified map data column.

Successful Link Search

If the link search is successful then all matching links will be listed within the window as illustrated in the figure below.



All links returned by a search will be highlighted in blue by default within the map. A link selected from the list, returned by the search, will be highlighted in cyan by default on the map.

Horizontal and vertical scroll bars are automatically activated to facilitate viewing of details lying outside the display area of the link search window.

Unsuccessful Link Search

If the link search fails to return any matching links then a message dialog will be displayed. The title bar of this window is dynamically set to reflect the name of map data on which the unsuccessful search was performed.

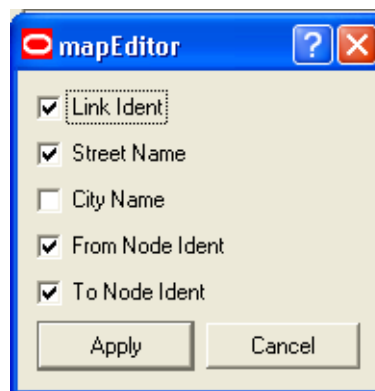
Close Button

The "Close" button will unconditionally close the "Link Search" window.

Configure Button

The link data being displayed within the "Link Search" window can be configured using the "Configure" button. The columns displayed in the link search results display can be configured by resizing the column width and by adding or removing columns from the display. The latest configuration setup is retained after closing the Link Search window.

Left Clicking the "Configure" button will pop-up a window as illustrated in the figure below.



This window consists of the following toggle buttons which can be enabled to display or disabled to hide, the associated link value.

Toggle	Link Value
Link Ident	Displays the link ident
Street Name	Displays the link street name if available.
City Name	Displays the link city name if available.
From Node Ident	Displays the ident of the node representing the start of the link.
To Node Ident	Displays the ident number of the node representing the end of the link.

Note: Link search results already displayed on the link search window will not reflect the newly applied configuration changes, unless the display is refreshed with a new search.

Configuring the Link Search Results Display

In order to apply a new configuration setup to the link search results display:

1. Left Click the "Configure" button.
2. Left Click the toggle buttons to enable/disable the associated link values.
3. Select "Apply" to save the new configuration setup. (Selecting "Cancel" will discard all configuration changes.)
4. Left Click the "Search" button to refresh the search results using the new configuration.

Join Map

For a map to be used within the Scheduler it must be fully connected, among a few other checks. The Map Editor provides the "Check Map" option under the Operations menu using which the map's connectivity and common points are checked to ensure that the map will be loaded into the Scheduler.

The connectivity check ensures that all the Nodes on a map can be reached. An error will be generated where there is no travel path between two groups of Nodes Link.

The map common points check ensures that there are no overlapping nodes at the same point.

A map loaded into Map Editor from third-party provider files can be not connected along region boundaries or, sometimes, within the same region. This type of disconnection can be fixed by joining nodes at the same location. Map Editor 2.0 provides two types of "join" operations: join regions and join links. The first one joins all nodes that belong to different regions but has the same location, the second one replaces references to all same location nodes regardless of the region. Note: Any of these operations can produce duplicate links in the map.

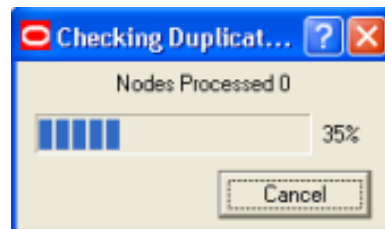
Check Duplicate Links

Two links are considered duplicate if they start and end at the same nodes, have same direction and are formed by identical poly-lines.

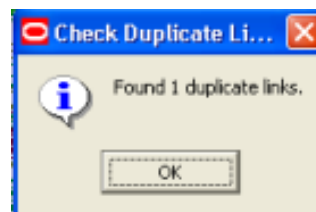
Select **Operations, Check Duplicate Links** from the Main Menu to find duplicate links in the Loaded map.

Duplicate links should be disabled before saving to Oracle Utilities Mobile Workforce Management format.

Progress of the selected operation is displayed in the *Checking Duplicate...* dialog illustrated below. The **Cancel** button in this dialog can be selected at any time to terminate the operation.



The number of duplicate links (if any) are displayed at the end of the operation.



Connectivity

The connectivity check ensures that all the Nodes on a map can be reached. An error will be generated where there is no travel path between two groups of Nodes Link.

For the purpose of scheduling, an Oracle Utilities Mobile Workforce Management map must be completely connected, that means each node can be reached from any other node of the map.

The Check Connectivity option determines if the currently Loaded Map is fully connected or not and displays the appropriate result.

1. Select **Operations, Connectivity, Check Connectivity** from the Main Menu to determine the currently loaded map's connectivity.

If the Map is not connected then

2. Apply Ctrl Left Click on a link to select the link.
3. Select **Operations, Connectivity, Remove Disconnected Nodes** from the Main Menu.

All links not connected to the selected link will be removed, so that the remaining links form a connected map.

Compress

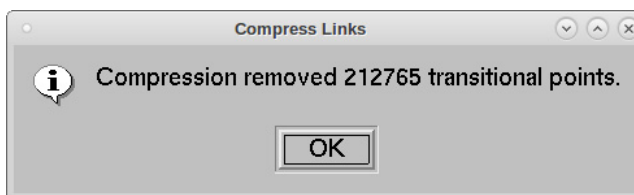
The compression operation changes the map and serves two purposes: reduce memory footprint of the output map and increase performance of route searching routines in scheduler.

A vector map link consists of a number of points (a poly-line) that geographically represents the shape of a link. Each poly-point increases the size of the output map when it is stored in the Oracle Utilities Mobile Workforce Management MAL of HIP format. Often, not all poly-points are required for the purpose of scheduling, and some of them can be removed from a link.

Moreover, some links of the map, called further transitive links, can be concatenated into one link without losing information about routes, for example links that represent the same road, which do not start and end at intersections can be collapsed into one link.

Select **Operations, Compress** from the Main Menu to compress the map by eliminating excessive poly-points and eliminating transitive links.

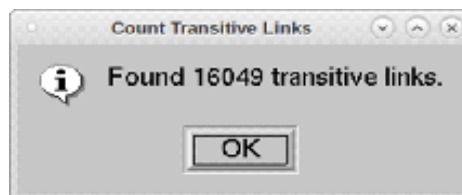
At the end of the operation a *Compress Link* dialog will display the total number transitional points that were removed.



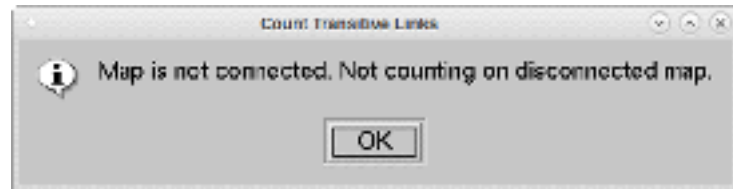
The Map Compression is configured by two command line arguments "maxDist" and "ratio". A point X between points A and B is considered redundant if distance of normal from X to a straight line A-B is less than distance from A to B multiplied by "ratio", or less than "maxDist", whichever is less. Obviously, the larger "maxDist" and "ratio" are the less accurate map will be produced. The default value for "maxDist" is 10 meters, the default value for "ratio" is 0.2.

Count Transitive Links

Counting transitive links does not change map, this operation is only informative. The number of transitional links is displayed after operation.



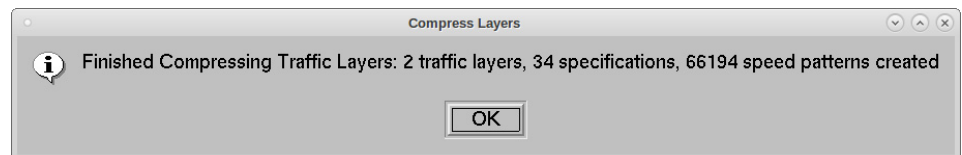
Note, that the operation only works on connected map. Attempt to count transitional links on disconnected map will give the following warning.



Compress Traffic Layers

The Traffic layers Compression operation calculates speeds for traffic layers defined by user (you) using link speeds provided by map data. Each Layer speed is calculated by averaging road-speeds provided in the map traffic data over the period of time on specific days that constitute the layer.

At the end of the operation a Compress Layers dialog will display number of layers and specifications and report the number of unique link speed patterns calculated during compression.



Help Menu












The Help menu consists of a single option

Option	Description
About	Displays the details of the Company and the Map Editor version being used.

Tool Bar

The buttons in the Tool Bar can generally be used as short-cuts for some of the more commonly used map menu bar or map window local menu operations. When the mouse cursor is placed over the buttons, a cue card pop-up explains the function of the button.

The buttons are activated with a Left Click.

	Traffic Layers	Selects which layer's link speeds to show on Map
	Print Map	Prints the Map within the Display area
	Zoom In	Increases the Map magnification
	Zoom Out	Decreases the Map magnification
	Reset	Resets the Map to the least magnification
	Speed Legend	Pops up the Speed Legend window
	Raster Map	Turns the Raster Map display On/Off if installed
	Grey Scale	Turns the Raster Map color On/Off
	Links	Turns the Map Links display On/Off
	LatLong Coordinates	Opens or closes the Node-Link Info window
	Auto Centre	Automatically positions the Map with the selected Link at the centre of the Display area.

Chapter 3

Map Editor Operations

This chapter describes Map Editor operations including:

- Startup without the need to load a map file
- Load a map file
- Save a map file
- Select one or more links on the map
- Adjust the parameters and labels of selected link or links

Editing a Map

The Map Editor does not allow for:

- the creation of new nodes or links on an existing map
- the removal of nodes on an existing map.

The Map Editor does allow:

- the creation of new maps
- the editing of link speeds
- the editing of link toll value
- the disabling of existing links (by setting the toll to a very large value)
- checking maps, to make sure they are fully connected

The following sections provide information needed to editing maps.

Load a Map

A map must be loaded into Map Editor before it can be edited. In order to load a map select "Load MAL format" from the "File" menu. Only unencrypted maps (that is maps with .mal extension) can be loaded and edited. Also see "Load MAL format" on page 27.

Enable Editing of the Map

Before a map can be modified the Map Editor must be switched into edit mode. This can be achieved by selecting the "Modify Map" option from the "Options" menu (see "Options Menu" on page 37).

Selecting the "Modify Map" option will automatically

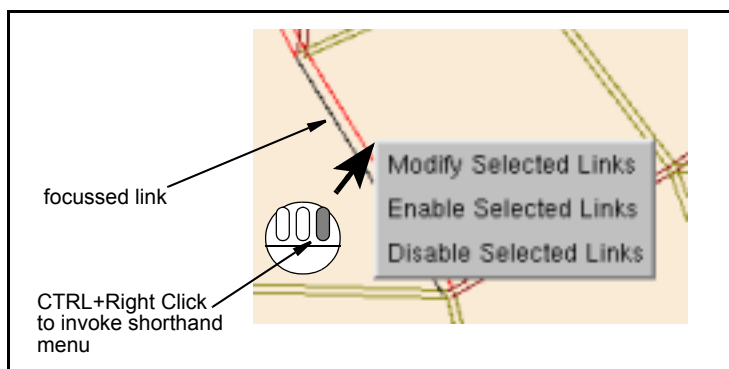
- enable the display of two-directional links so that each actual link can be identified for editing (see "Two-directional Links" on page 37).
- open the node link information dialog (see "Link Info" on page 36) and
- highlight the link which is being displayed in the node link information dialog box on moving the mouse around on the map.

Editing a Single Link

Map Editor allows links to be edited either in a group or individually.

In order to edit map links one at a time:

1. Focus on the link by moving the mouse over it.
2. Ctrl Left Click to select the link
3. Ctrl Right Click to Invoke the link local menu.
4. Select the Modify, Enable or Disable options from the shorthand menu (see the menu illustrated in the figure below).



Edit operations on single links

The following operations are allowed on a selected link:

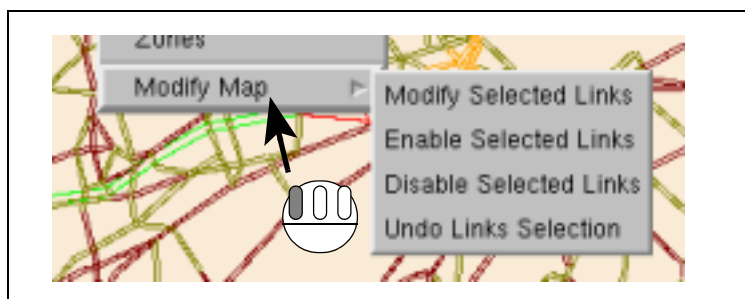
Operation	Description
Modifying link	See “Modifying Links” on page 4.
Enable link	See “Enabling Links” on page 5
Disable link	See “Disabling Links” on page 5

In order to deselect a selected link, focus and select the link once again.

Editing Multiple Links at Once

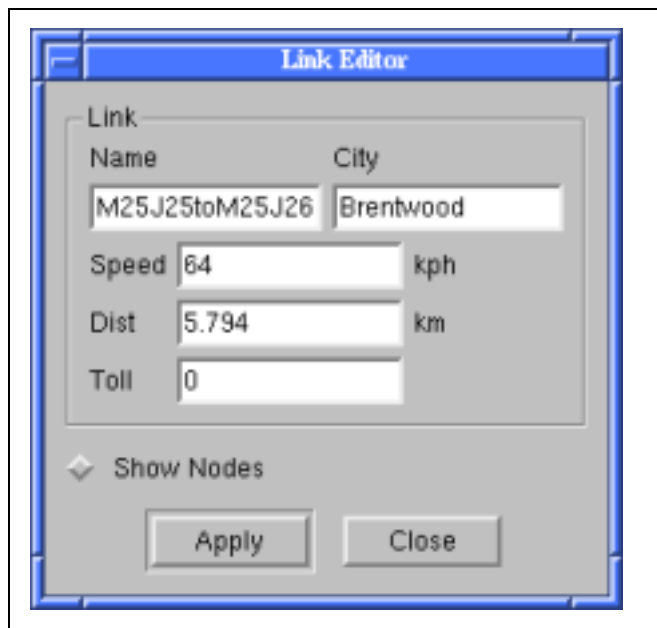
In order to edit multiple links simultaneously you can draw a box around all of the links that you want to select, or select individual links while holding the Ctrl key.

- Selected links are displayed in magenta color by default.
- After selecting the links, invoke the Map Editor Window local Menu with a Right Click on the map.
- Select the "Modify Map" option from the Map Editor Window local Menu. A sub menu as illustrated in the figure below will be displayed.



Modifying Links

Selecting the "Modify Selected Links" option will open the Link Editor window similar to the one illustrated in the figure below.



The Speed and Toll values can be edited for all the selected links at once from the Link Editor window. Distance can only be edited, one link at a time.

Note: Once modified all the selected links will have these edited values so care should be taken when modifying multiple links.

Node Information

By default, the Link Editor window suppresses the display of node information. The node information associated with the currently selected link can be expanded by selecting the "Show Nodes" check box.

The screenshot shows the 'Link Editor' dialog box with the following fields and sections:

- Link Information:** Name (M25J25toM25J26), City (Brentwood), Speed (64 kph), Dist (5.794 km), Toll (0).
- Show Nodes:** A checked checkbox.
- From Node:** Name (125 JUNCTION 25), Abbreviation (M25J25), Index (23), Latitude (51.681), Longitude (-0.05452).
- To Node:** Name (125 JUNCTION 26), Abbreviation (M25J26), Index (22), Latitude (51.6779), Longitude (0.028286).
- Buttons:** Apply, Close.

Annotations on the left side of the dialog box:

- 'Link information' points to the top section of the dialog.
- 'Expand or collapse the display of node information' points to the 'Show Nodes' checkbox.
- 'from node information' points to the 'From Node' section.
- 'to node information' points to the 'To Node' section.

The latest "Show Nodes" checkbox setting is retained after the Link Editor window is closed.

Disabling Links

Links are disabled by setting the Toll value in the link to a very high value. If this is the only route between 2 locations it will still be used. But if there is any other path, regardless of the distance between the two locations, it will not be used by the Oracle Utilities Mobile Workforce Management scheduling application Planner. The Toll factor must be set to a value greater than 0, within Planner, for this to take effect. The highest value that can be set for Toll is 100.

Enabling Links

This option clears the disabling of links by setting the toll factor to 0.

Undo Link Selection

The Undo Links Selection is only available when at least one link is selected. This option will clear the selection so that no links are selected.

Saving and Loading Map Edits

When new map updates are sent from the source map system, such as HERE maps or Nokia / NAVTEQ maps, the updates overlay the existing maps, overwriting any edits made in the Map Editor tool. Edited maps can be saved and reapplied onto an updated version the maps by following the prompts in the Save dialog.

When a users edit maps, a dialog opens showing all of the changes as they make them. At any point they can be saved. If an update comes from the map supplier, the saved map can be reloaded by editing the map again, and loading a previously saved script to re-apply the changes.

Appendix A

Creating MWM Maps

The output of Map Editor is a map in Oracle Utilities Mobile Workforce Management format that can be used by the Oracle Utilities Mobile Workforce Management scheduler. A map supplied to the scheduler must be connected, and can only require a limited amount of memory (300-500 Mb depending on hardware configuration). To produce such a map the following operations should be conducted in the following order:

1. Join (Regions and/or Links).
2. Remove Disconnected Nodes.
3. Compress Map.
4. Save map into Oracle Utilities Mobile Workforce Management format.

The first two operations are required to satisfy the first requirement for an Oracle Utilities Mobile Workforce Management-map. It is best first to join regions and links and only then remove any non-connected links (Remove Disconnected Nodes), otherwise Map Editor can remove many more links than required.

The third operation, map compression, reduces number of output links for Oracle Utilities Mobile Workforce Management maps, decreasing amount of required memory. It does not depend on the two other operations, but it may run faster when all not connected links are deleted.

All four operations will be done automatically by Map Editor when a user selects "Save MWM format" option from the "File" menu. This approach is the simplest, but it has a drawback: as "Remove Disconnected Nodes" algorithm requires a link to start connectivity search, Map Editor picks the link at random, so there is a small chance it picks a "wrong" link and the resulting map will not contain a required area or in the worst case will not contain any link at all. To reduce a chance of this to occur the Map Editor counts a number of links to be removed, and if it exceeds 50% tries another link. If two attempts are not successful, a link will be chosen the third time and whatever map is produced will be saved into Oracle Utilities Mobile Workforce Management format.

To make sure Map Editor produces maps that cover the required area the user should manually perform "Join" and "Remove Disconnected Nodes" operations before saving to Oracle Utilities Mobile Workforce Management. It will give him/her an opportunity to prompt the system which link to use to start connectivity search.

A proper map requires link-speed to be configured, so the corresponding dialog will warn a user if speed categories for the map are not configured on request to save to Oracle Utilities Mobile Workforce Management format. But, the user will have the option to save a map where all links will have a default speed.

Appendix B

Map Editor Configuration Parameters

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
logLevel	int_range	0 .. 9	0	Sets the level of detail that will be logged for the process.	Ideally set to 0 and should not be set above level 5.
testLevel	int_range	0 .. 9	NONE	Sets the depth of testing that will be performed on the process in the test code. Must not be set to a value >0.	The test level and associated testing scope are listed below: 0=No optional tests 1=Consistency tests that have a negligible impact on performance. 3=Consistency tests that may have some impact on performance. 5=Consistency tests that may significantly alter the system's performance. Used by Oracle only. Do not change.

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
[Vwarp=NN]	double_range		NONE	Vwarp, Vdate, Vtime and Vtimezone can be used to respectively set the virtual time and date, warping speed of processes and the application default timezone. These parameters can be applied to all scheduler processes.	<ul style="list-style-type: none"> "Vwarp=N" speeds virtual time factor N up. "Vwarp=-N" slows virtual time factor N down. Setting Vdate=15/01/1990 will start the process as if the current system date is the 15th of January 1990. This virtual date can be any date in the past or future. Setting Vtime=023514 will start the process at 02 hours 35 minutes and 14 seconds in the morning. Setting Vtimezone="Australia/Melbourne" will set the application's default timezone to the local time in Melbourne, Australia.
[Vdate=DDMMYYYY]	int_range		NONE		
[Vtime=HHMMSS]	int_range		NONE		
[Vtimezone]	string		NONE		
NoExit	boolean	TRUE, FALSE	FALSE	Set to TRUE to enable the process to continue after test point failures (or assertions).	Used by Oracle only. Do not change.
-shArgsEcho			cmd-line echo		
config	string			sources file for cmdline and environment	The Map Editor process reads the config file named on the command line (config=name)
-noLogStdOut	boolean	TRUE, FALSE	FALSE	Set to TRUE to disable logging to standard output.	
version			display version information about this release		
pluginDir	String		LIB	Directory in which Map Editor looks for Plugins that assist with QT Styles and database drivers.	

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
appStyle	string_range	WindowsXP,Windows	Windows	Defines the style of the application which controls the look and feel of Map Editor.	The default style is Windows on Linux installation and WindowsXP on Windows installation.
shSStore_Reclaim_Interval			time for the slicer[60]		
logCompress	string		gzip	Sets the file compression method for log files.	Compression of log files is available only for UNIX installations.
-logToFile_MSG	boolean	TRUE, FALSE	FALSE	Used to save logs to disk file.	Logs are essential for tracking process related issues and hence should always be logged to File.
logFilePrefix_MSG	string		mapEditor_MSG	Used to set the path and prefix for log file(s).	This must be a valid and accessible location on the disk.
logHours_MSG	int_range	1 .. 24	1 hour	Sets the time span between each log file.	Log files are usually sent as email attachments. Setting this value to 1 hour will keep these file size to a minimum.
numLogFiles_MSG	int_range		7	Sets the number of latest Map Editor log files to be maintained on the disk.	Old log files are deleted (only on UNIX installations). Log files created prior to a system restart are not deleted. "Msys" must be installed for this parameter to be effective on the Windows environment. Where possible, this value should be set large enough to cover the operational window without exhausting the system's storage capacity.
-distInMiles	boolean	TRUE, FALSE	FALSE	Used to display distance either in miles or in kilometers. TRUE = distance in miles FALSE = distance in Kilometers	
distPrecision	int_range		3	Number of decimal digits for displaying distance/speed	

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
hipDefaultUTCOffset	int_range		Vtimezone	Is the default UTC offset for packet field in (-)HHMM or (-)hhmmss format. Default is to use application default timezone	
detailLabelFont	string		normalFont	Sets the default font family for window label	
disableDbfBuf	boolean	TRUE, FALSE	FALSE	Disable all double buffering in grid windows	
cellMargin	int_range	0 .. 10	1	Sets the margin width, in pixels, around the data cells in table displays. No cell data (or other margins) can be drawn in this region.	It provides a blank area at the boundary of a data cell. Also see NMC_HIGHLIGHT_MARGIN and NMC_TEXT_MARGIN.
highlightMargin	int_range	0 .. 10	3	Sets the highlight margin width, in pixels, inside the NMC_CELLMARGIN.	This margin is used exclusively for the display of a rectangle that will be drawn when the cell is selected or highlighted.
textMargin	int_range	0 .. 10	1	Sets the text margin width, in pixels, inside the NMC_HIGHLIGHT_MARGIN.	This margin is used to provide a blank area between the data text and the highlight margin. The data text characters of the cell will be drawn inside this margin.
num_alert_messages	int_range		250	Number of messages stored in the Alert window	
enableLayoutControl	boolean	TRUE, FALSE	FALSE	enables layout control	
sbTimeFormat			hh:mm MM dd yyyy	time format for status bar	
largeToolButtons	boolean	TRUE, FALSE	FALSE	use large toolbar buttons	
textToolButtons	boolean	TRUE, FALSE	FALSE	put text on toolbar buttons	
appTitle	string		NMC	app title	
appName	string		NMC	app name	

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
mapViewerURL	string		" "	location of the OracleAS MapViewer server	
mapViewerDatasource	string		" "	specify OracleAS MapViewer datasource to be used	
mapViewerBasemap	string		" "	specify OracleAS MapViewer basemap to be used	
loadMapViewerImageDirect	boolean	TRUE, FALSE	TRUE	return the generated PNG image directly (not a link to the image)	
projection	string		etc/ map_projections.cfg	projection config file for proj/ latlong library	
xOffset	double_range	0.0 .. 10000000.0	0.0	Raster maps offset in x direction in meters.	These parameters are used to adjust the calibration of raster images. They are in meters and will adjust ALL image calibrations.
yOffset				Raster maps offset in y direction in meters.	
rmap	string	NULL		Used to set the path and filename of a raster map file or the full path to the master file containing all the raster map data	
zoneFile	string		zonefile	Path to zone file	
mapColorDepth	int_range		-1	MAP: color depth of icons on map	
mapLabelPadding	int_range		3	MAP: padding around route label text	
mapBackgroundColor	string		AntiqueWhite	MAP: background color on map	
nearestLinkColor	string		Black	MAP: selected link color on map	
greyOffset	int_range	-255 .. 255	50	MAP: greyscale offset	

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
mapDatum	string		NONE	Datum type used by vector map, required for calibration when raster and vector data do not match	
mapOffset	string	[+ -]x.x,[+ -]y.y	0.0,0.0	Offsets in x and y direction by which vector map coordinates differs from raster map	
configPath	string		./	config directory path	
areaFileName	string		MtdArea.DAT, MtdArea.dbf	The area file name	
leftAreaId	string		L_Area_ID, L_AREA_ID	The column name for left area id	
rightAreaId	string		R_Area_ID, R_AREA_ID	The column name for right area id	
areaId	string		Area_ID, AREA_ID	The column name for area id	
areaName	string		Area_Name, AREA_NAME	The column name for area name	
areaAdminLevel	string		Admin_Leve, ADMIN_LVL	The column name for area admin level	
areaType	string		Area_NameT, AREA_TYPE	The column name for area type	
areaCode1	string		AreaCode_1, AREACODE_1	The column name for area code one	
areaCode2	string		AreaCode_2, AREACODE_2	The column name for area code two	
altStreetFileName	string		AltStreets.DAT, AltStreets.dbf	The altstreet file name	
streetLinkId	string		Link_ID, LINK_ID	The column name for link id of street	
streetNameBase	string		StNm_Base, ST_NM_BASE	The column name for street base name in main data	
streetNamePref	string		StNm_Pref, ST_NM_PREF	The column name for street name prefix	
streetNameSuff	string		StNm_Suff, ST_NM_SUFF	The column name for street name suffix	

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
streetTypeBef	string		StType_Before, ST_TYP_BEF	The column name for street type before street name	
streetTypeAft	string		StType_After, ST_TYP_AFT	The column name for street type after street name	
altStreetNameBase	string		StNm_Base, ST_NM_BASE	The column name for alt street base name in main data	
altStreetNamePref	string		StNm_Pref, ST_NM_PREF	The column name for alt street name prefix	
altStreetNameSuff	string		StNm_Suff, ST_NM_SUFF	The column name for alt street name suffix	
altStreetTypeBef	string		StType_Bef, ST_TYP_BEF	The column name for alt street type before street name	
altStreetTypeAft	string		StType_Aft, ST_TYP_AFT	The column name for alt street type after street name	
refFileName	string		MtdRef.DAT, MtdRef.dbf	The reference file name	
refClass	string		Reference_, REF_CLASS	The column name for reference class	
refCode	string		Code, CODE	The column name for reference code	
refDes	string		Descriptio, DESCRIPT	The column name for reference description	
leftPostcode	string		L_PostCode, L_POSTCODE	The column name for left postcode	
rightPostcode	string		R_PostCode, R_POSTCODE	The column name for right postcode	
leftRefAddr	string		Left_RefAddr, L_REFADDR	The column name for left reference address	
rightRefAddr	string		Right_RefAddr, R_REFADDR	The column name for right reference address	
leftNRefAddr	string		Left_NonRefAddr, L_NREFADDR	The column name for left non-reference address	
rightNRefAddr	string		Right_NonRefAddr, R_NREFADDR	The column name for right non-reference address	

Configuration Parameter	Type	Range	default	Description	Recommendations / Comments
maxDist	double_range		20	maximum deviation from the original when compressing links (m).	
nDataRowsDefault	int_range		100	The default number of rows of data displayed	
foundLinkColor	string		blue	found link color on map	
inViewLinkColor	string		cyan	color of link 'in view' on map	
selectedLinkColor	string		magenta	selected link color on map	
selectedFoundLinkColor	string		green	selected and found link color on map	