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ROAD NETWORK GENERATION GUIDE

Road Network Generation Guide

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| Revision of this document only to be conducted by: | Dave Lane, Mark Snook, Paul Chatterton |
| Permission Given by: | Dave Lane |
| Date permission Granted: | 13/03/09 |

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| NA | Dave Lane | Dave Lane | Jo Hunt |
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| Additional information to section 3.6 | | | |

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1. INTRODUCTION

This document describes the process by which Road Network can be generated for use in VISION.

2. PREREQUISITES

2.1 Software and Hardware

- Mapinfo Professional, 6.5 of greater.
- Routeview SDK, provided by Fortek.
- AppendTabs utility, provided by Fortek.
- A Windows PC with the Mapinfo Professional installed.

2.2 Expertise

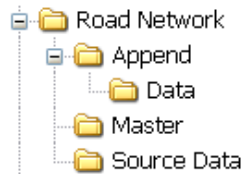
- Intermediate Mapinfo knowledge is essential.

2.3 Data

- The raw .shp files from which the road network will be generated.

2.4 Folder Structure

- The following folder must be created on the PC used for the generation:



- The 'Source Data' folder will contain all the raw .shp files.
- The 'Append' and 'Data' folders are used during the data manipulation steps.
- The 'Master' folder is used to store a copy of the master Mapinfo table before it is converted into a useable road network

3. THE GENERATION PROCESS

The single biggest problem encountered when converting the data is the different number of columns contained within each .shp file.

If the same number of columns can be guaranteed there is no need complete sections 3.2, 3.3 and 3.4.

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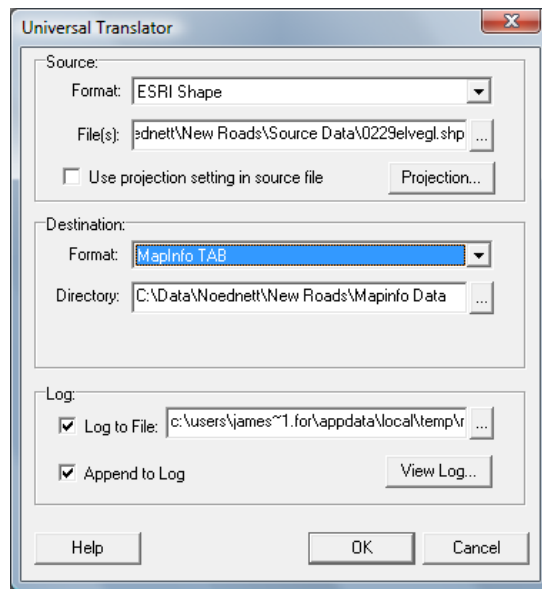
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3.1 Convert all .shp files into Mapinfo Tables

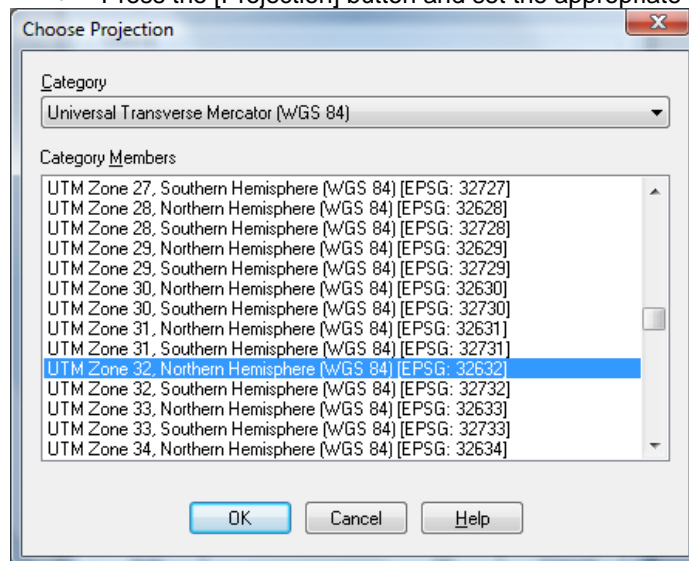
- Extract all .zip files into the 'Source Data' folder.
- Keep only files that contain the word "elvegl".
- Load the Mapinfo Universal Translator.
Set Source Format to: ESRI Shape
Set Source Files(s) to: contents of 'Source Data' folder

Set the Destination Format to: MapInfo TAB
Set the Destination Directory to the 'Append' folder.

Ensure the 'Use projection setting in source file' is unchecked



- Press the [Projection] button and set the appropriate projection.



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3.2 Identify Existing Columns

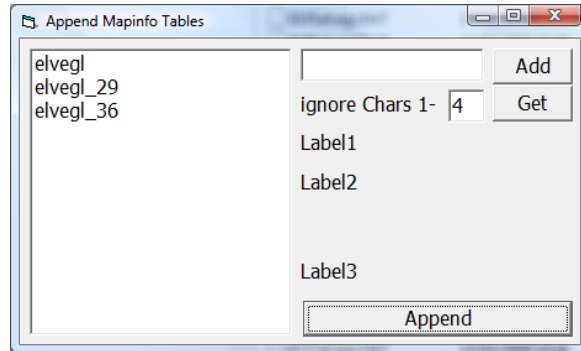
- Browse to the 'Append' folder.
- Open each .tab file in Notepad.
- Make a note of the number of fields.
- Rename all four Mapinfo files (.tab, .map, .dat, .id) to *_{fields count}.* according to the following rules:

| Original Filename | Field Count | New Filename |
|---|-------------|---|
| 0229elvegl.tab 0229elvegl.dat 0229elvegl.map 0229elvegl.id | 35 | Filename does not change |
| 0228elvegl.tab 0228elvegl.dat 0228elvegl.map 0228elvegl.id | 36 | 0228elvegl_36.tab 0228elvegl_36.dat 0228elvegl_36.map 0228elvegl_36.id |
| 0227elvegl.tab 0227elvegl.dat 0227elvegl.map 0227elvegl.id | 29 | 0227elvegl_29.tab 0227elvegl_29.dat 0227elvegl_29.map 0227elvegl_29.id |
| | Etc. | Etc. |

3.3 Append Mapinfo Tables

- Copy AppendTabs.exe into the 'Append' folder.
- Run AppendTabs.exe.
- Set the 'Ignore Chars 1-' to 4.
- Press [Get]
Ensure a list of all destination files is displayed.
- Press [Append].
The 'Data' folder now contains a series of appended Mapinfo tables.

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3.4 Ensure Consistent Mapinfo Table Structure

- Browse to the 'Data' folder.
- Open each table in Mapinfo.
- Select Table > Maintenance > Table Structure
- Add the following fields:

| Name | Type |
|-------------|----------------|
| ID | Integer |
| Type | Integer |
| YSKA | Integer |
| DefaultRd | Integer |
| Direction | Integer |
| StartTurns | Character(10) |
| EndTurns | Character(10) |
| Updated | Character(1) |
| Form | Character(1) |
| Description | Characater(30) |

- Rename the following fields:

| Original Field | New Field Name | New Type |
|----------------|----------------|---------------|
| Gate | Road_Num | Character(10) |
| Gatenavn | Proper_Name | Character(40) |
| Transid | OSODR | Character(15) |

- Keep the following fields unchanged:
 - VEGTYPE
 - VEGSTATUS
 - VKJORFLT
- Delete all other fields
- Save each table.

3.5 Creating a Single Mapinfo Layer

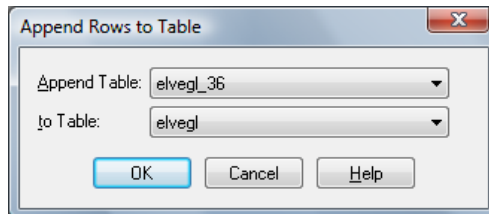
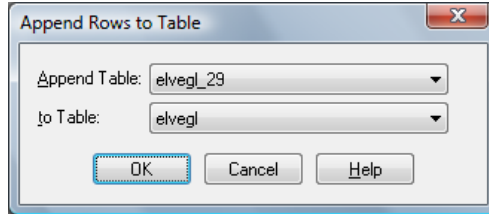
This step is designed to append all tables into a single Mapinfo layer.

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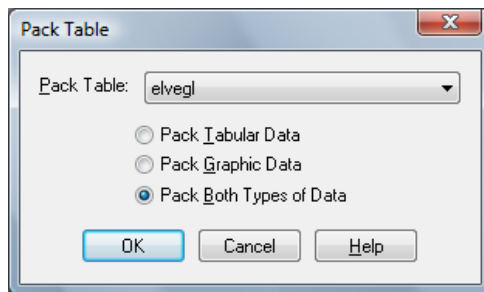
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Note: Always append smaller tables into larger tables, this will make the processing a lot quicker.

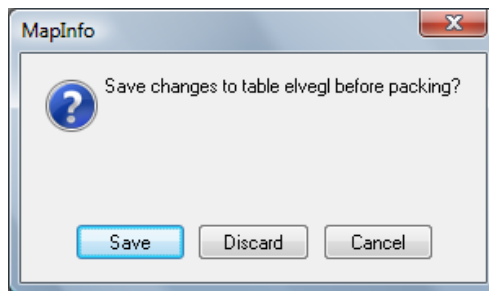
- Select Table > Append Rows to Table



- Pack main table



- Save changes



- Close All tables
- Copy the final appended table into the 'Master' folder.
Note: In the example above the main table is 'elvegl'

3.6 Preparing the Mapinfo Data

- Reopen the master table in Mapinfo

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- Copy the following commands into a New Mapbasic Window.
Note: You will need to replace 'elvegl' with the name of your master table.

```
select * from elvegl where VEGTYPE = "E" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 1, defaultrd = 1, Description = "Europe Road"
```

```
select * from elvegl where VEGTYPE = "R" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 2, defaultrd = 2, Description = "National Road"
```

```
select * from elvegl where VEGTYPE = "F" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 3, defaultrd = 3, Description = "County Road"
```

```
select * from elvegl where VEGTYPE = "K" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 4, defaultrd = 4, Description = "Municipal Road"
```

```
select * from elvegl where VEGTYPE = "S" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 5, defaultrd = 5, Description = "Private Road (Forest)"
```

```
select * from elvegl where VEGTYPE = "P" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 6, defaultrd = 6, Description = "Private Road (Other)"
```

```
select * from elvegl where VEGTYPE = "G" and VEGSTATUS = "V" into tempsetl
Update tempsetl set Type = 7, defaultrd = 7, Description = "Path / Cycle Path"
```

```
select * from elvegl where VEGTYPE = "K" and VEGSTATUS = "S" into tempsetl
Update tempsetl set Type = 8, defaultrd = 8, Description = "Car Ferry"
```

```
select * from elvegl where VEGTYPE = "R" and VEGSTATUS = "S" into tempsetl
Update tempsetl set Type = 8, defaultrd = 8, Description = "Car Ferry"
```

```
select * from elvegl where VKJORFLT = "1" or VKJORFLT = "1#3" into tempsetl
Update tempsetl set Direction = 1, YSKA = 1
```

```
select * from elvegl where VKJORFLT = "2" or VKJORFLT = "2#4" into tempsetl
Update tempsetl set Direction = 2, YSKA = 2
```

```
Commit Table elvegl Interactive
update elvegl set ID = rowid
Commit Table elvegl Interactive
Create Index On elvegl (ID)
Commit Table elvegl Interactive
```

- Run each statement once by pressing [Return] at the end of each line.
- Select Table > Maintenance > Table Structure
- Either delete the original "VEGTYPE" column or rename it to "VEGT".
- Save the table

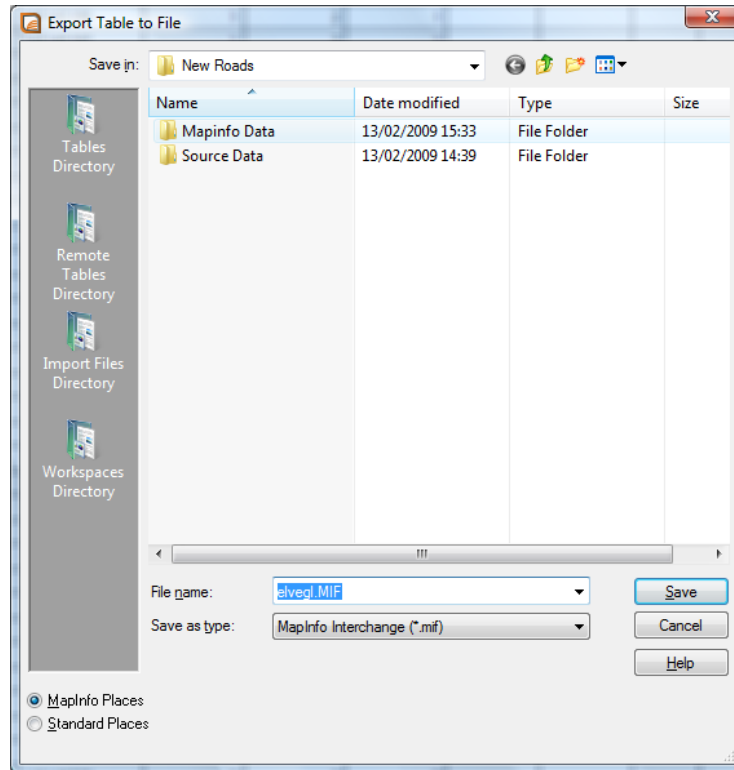
3.7 Exporting the Mapinfo Data

- In Mapinfo select Table > Export
- Set the 'Save as Type' to 'Mapinfo Interchange (*.mif)

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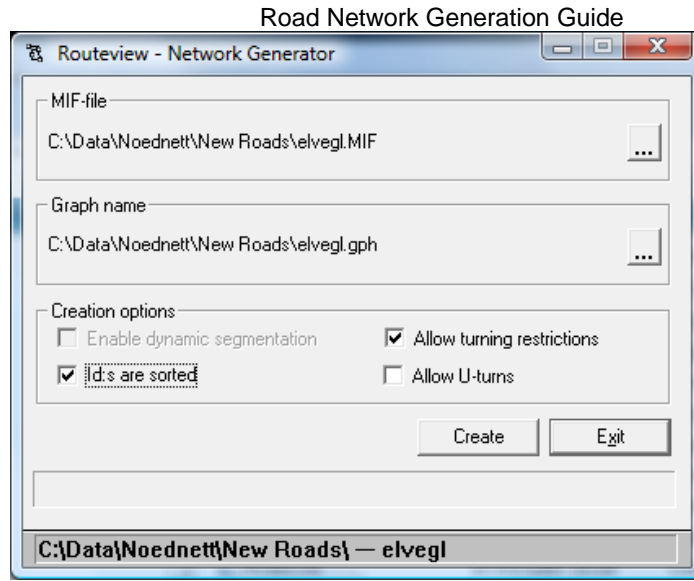
- Save to the 'Road Network' folder.



3.8 Generating a Road Network

- Browse to the 'RV' folder
- Run do_gc.exe and browse to the .mif file created in Step 7. Ensure 'Allow turning restrictions' is checked. Ensure 'Ids are sorted' is checked.
- Press the [Create] button.

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When the Network Generator has finished a VISION compatible road network will have been created in the 'Road Network' folder.

3.9 Testing the Road Network.

There are two ways to test the newly generated road network.

1. Run the rview.mbx, found in the 'RV' folder, in Mapinfo.
2. Configure VISION to use the newly generated road network.

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