RouteFinder - Capita EMS link

User Manual

Version 3.40

March 2010

Contents

Introduction

This document is to enable the end user to use RouteFinder to run GIS functions available in EMS modules. Although currently RouteFinder GIS is mainly used within in Admissions and Transfers and Transport modules some functions, such as geocode an address, can be done on any student or base within relevant modules.

The aim of this document is not to give a definitive step by step user guide to all the functions that use GIS; its purpose is to define installation and setup and to give a quick resume of the functions that can be used with GIS.

Throughout this document reference to a ‘Superuser’ means a user whose setup includes MapInfo or ArcGIS, RouteFinder and an EMS Link licence. All reference to ‘user’ means those whose setup is simply the EMS Link with access to relevant network files.

The grid below shows what software is needed for the functions that the user performs:

Area	Function	MapInfo or ArcGIS	RouteFinder	EMSLink	Viewer
Address Manager	View Map				X
	Position			X	X
Student | School History	View Route calculated for distance to school				X
	Calculate Route			X	
Student | School Search	Catchment schools - View Map				X
	Nearest Schools - Calculate			X	
	Nearest Schools - View Map				X
Student | Assessment	Calculate distances			X	
	View Route calculated for distance to school				X
	In catchment			X	
	Transport Options - view on a map of routes & availability				X
Bases | Base Catchment	View Catchment				X
	Edit Catchment	X	X	X	
A&T Tools | Routines	GIS Batch Processes - Distances			X	
	GIS Batch Processes - Route Maps			X	
	GIS Batch Processes - Catchments			X	
	Schools Map	X	X	X	
Transport	Edit Route	X		X	
	View route				X
Population Forecasting	Putting HA child data into catchment schools			X	

Some functions are carried out outside of EMS but still require GIS software and RouteFinder – they are:

Function	MapInfo or ArcGIS	RouteFinder
Create Network	**X**	**X**
Manage network - close off unsafe routes, footpaths, one-way streets etc	**X**	**X**
Interactive routes (new) - click on start / end points, show the route between	**X**	**X**
Bus route optimisation	**X**	**X**

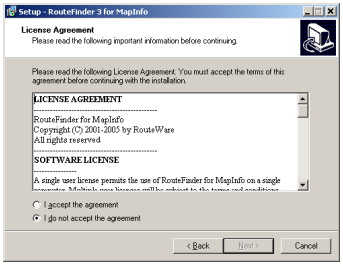
Installation

This installation guide assumes that MapInfo Professional is already installed on the computer. This software has to be pre-installed before continuing with installation.

When the RouteFinder disk is inserted into the CD-ROM drive the installation should start. If not, double click on the executable “Setup.exe” from the file explorer window.

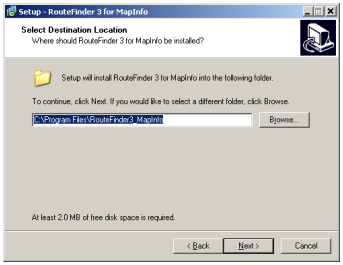
This is the first screen displayed once the install starts.

Click “Next” to continue

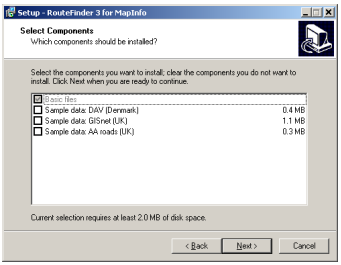


You will have to accept the licence agreement in order for the installation to proceed.

Click “Next” to continue

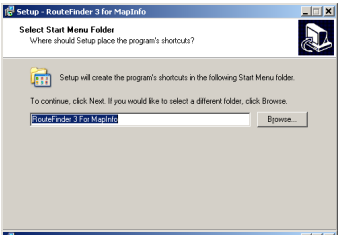


On this screen you should select the directory in which to install the software. Unless you have a reason to change this then just accept the default directory as this will make upgrades easier to apply.
Click “Next” to continue



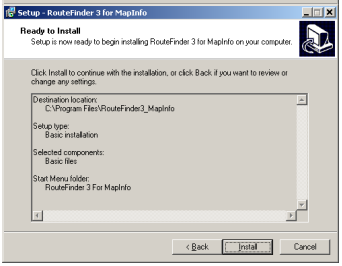
On this screen you have to install the basic files and you can choose to select sample networks.

Click “Next” to continue



Select the Menu folder to use. Again unless you have reason to change it please accept the default.

Click “Next” to continue



Finally, a summary screen is displayed and if everything is OK then press “install” to continue.

When the installation is complete this screen is displayed.

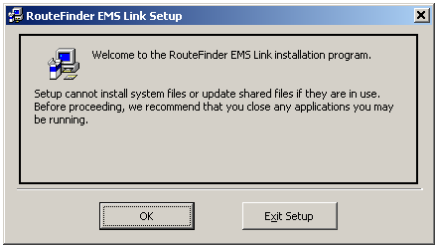
The next step is to install the licence file.

You will have been sent – probably by email – a file called Routefinder.lic. This file is also supplied on the CD of the EMS Link Software. Please copy this file into the same directory that was specified for the installation. This will activate RouteFinder.

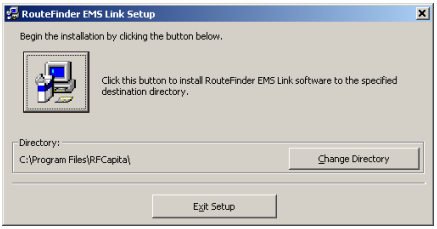
Installing ONE GIS Link

The next task is to install the EMS link. This will be located in the EMS directory on your RouteFinder CD.

Double click the “setup.exe” in this directory to start the installation. A blue screen will appear with “RouteFinder EMS Link Setup” and the following dialogs will be displayed:-

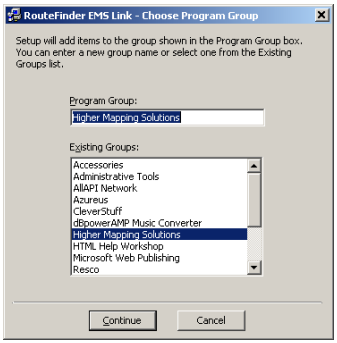


This is the Welcome Screen please click “OK” to continue



On this screen you should select the directory in which to install the software. To use this link on more than one machine you should have a common network point between all the computers.

To continue click the large button with the picture of the computer on it.



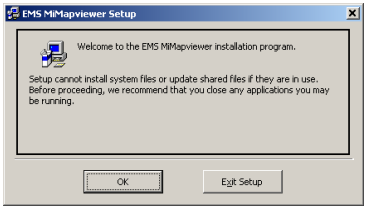
Next you select the menu folder to use. Again unless you have reason to change it please accept the default.

Click “Continue” to complete the installation.

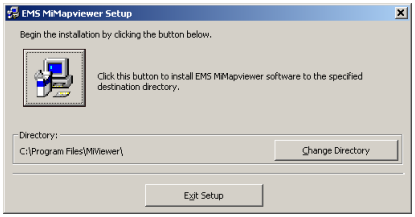
Installing the Map Viewer

The next task is to install the Map Viewer. This will be located in the MiViewer or the MoViewer directories on your RouteFinder CD.

Double click the “setup.exe” in this directory to start the installation. A blue screen will appear with “EMS MiMapVeiwer Setup” and the following dialogs will be displayed:-

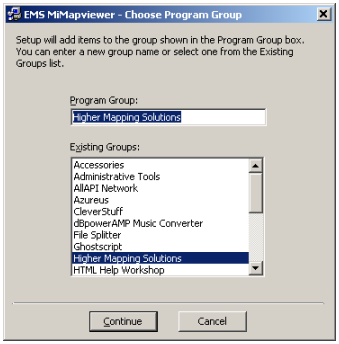


This is the Welcome Screen please click “OK” to continue



On this screen you should select the directory in which to install the software.

To continue click the large button with the picture of the computer on it.



Next you select the menu folder to use. Again unless you have reason to change it please accept the default.

Click “Continue” to complete the installation.

You also need to run the MapX setup.exe from the MapX directory under MiViewer folder on your installation CD

You will need to put in the OS copyright statement into the miviewer.ini file.

OSCOPYRIGHT= (put copyright statement here)

The year is automatically appended to this statement and does not need to be added.

If you are installing the viewer on by itself then you will need to make some edits to some INI files.

Edits to the EMS.INI file add the following lines:-

For MapInfo

[GIS]
Product=RouteFinder GIS MapInfo
GISViewer=c:\ Program Files \MiViewer\MiViewer.exe
MapsDir=<Directory to network files>
GISDir=C:\ems-gis\temp

For ArcGIS

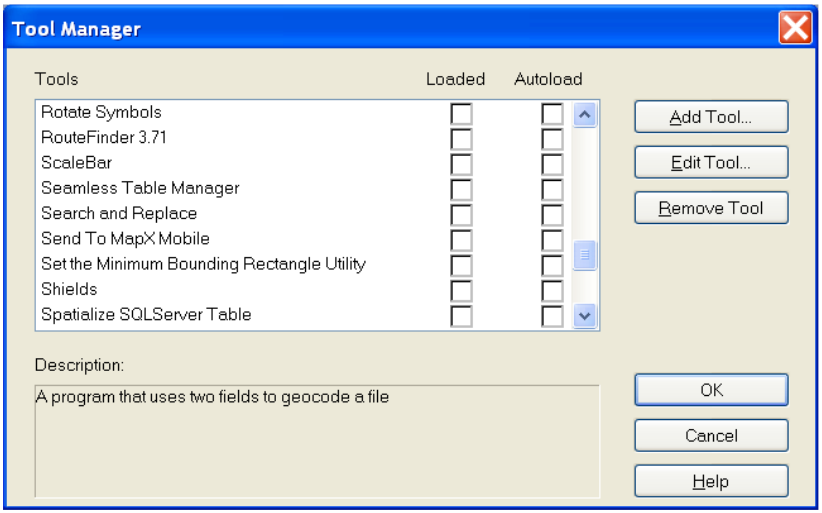
[GIS]
Product=RouteFinder GIS ArcView
GISViewer=c:\ Program Files \MoViewer\MoViewer.exe
MapsDir=<Directory to network files>
GISDir=C:\ems-gis\temp

You will also need to ensure the C:\ems-gis\temp directory exists on the local PC.

Starting RouteFinder in MapInfo

Once RouteFinder has been installed you can start MapInfo.

When in MapInfo go to Tools > Tool Manager and you will see a window like this:-



Scroll down until you see the RouteFinder entry (the version number may be different)

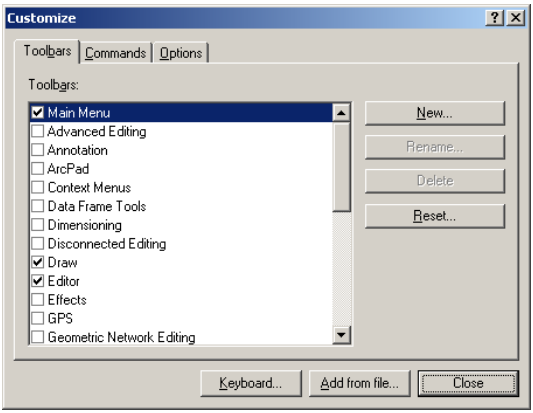
Click on the “Loaded” tickbox. (You should not autoload RouteFinder as this may affect the workspace will set up later)

When you click OK you will see RouteFinder added to the main menu bar.

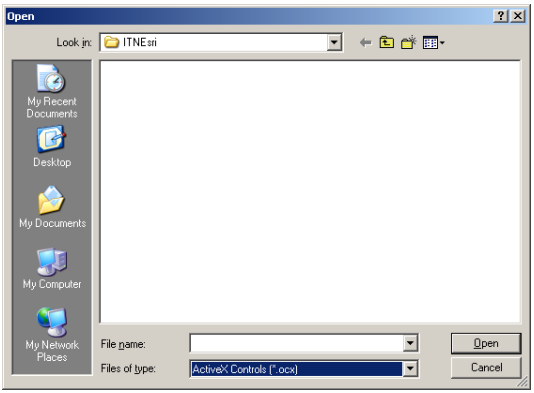
Starting RouteFinder in ArcGIS

Once RouteFinder has been installed you can start ArcMap.

When in ArcGIS go to Tools > Customize and you will see the following screen:-



Click on the “Add From file…” button you will get this dialog:-

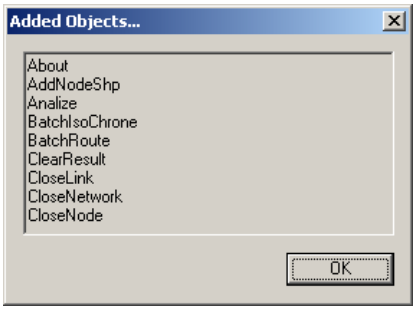


Click on “Files of Type” and change it to ActiveX Controls(*.ocx)

Next change the folder to look in to the folder where installed RouteFinder for ArcGIS. This is usually C:\Program Files\RouteFinder3_ArcGIS.

Click on RouteFinder.ocx and Click OK.

After a short time you should see a screen like this:-



This dialog can take a few minute to appear.

You can now Scroll down in the toolbars list and click on the RouteFinder tickbox.

The Toolbar for RouteFinder will then appear in ArcMap.

Creating a Network

You will need to create a network before the set up of the link can be completed.

Please refer to the RouteFinder help file for more information on how to create the network.

Many different sources of network can be used with RouteFinder. The network has to be topologically correct in order for routing to take place.

Examples of this type of network would be:-

Ordnance Survey Meridian2
Ordnance Survey ITN data with Urban Paths (Free translator available)
Navteq Street Data
Teleatlas Street Data

If you have any questions on the data that can be used with RouteFinder then please get in touch with the Capita Helpdesk.

This link can handle multimodal networks – that is it uses the same network for walking as for driving. By changing the attribute of a road you can define such things as speed, one way streets, whether it is suitable for walking and/or suitable for driving.

If using ITN data please make sure you do not use the "turn.bin" file. You can rename the file or delete it.

The attributes are defined as below:-

0-31: Defines road class. These have no predefined meaning but are used to classify motorways, ‘A’ roads, ‘B’ roads, dual carriageways, urban and rural type roads.

Add 32 if the link should not allow mode 1
Add 64 If the link should not allow mode 2
Add 512 if it is a one-way street, which can be travelled in the digitised direction.
Add 1024 if it is a one-way street, which may not be travelled in the digitised direction.
Add 2048 if a link is part of a roundabout.

To define a multi modal network you need to change the settings in the CapitaEMS.ini file.

SWDMode is the mode to use for walking distances
DRVMode is the mode to use for driving.

Using these to establish safe walking routes on a network:

1. To define ‘unsafe’ (therefore unavailable) walking routes: you select motorways and dual carriageways and any other unsafe roads and add 32 to the attribute.

2. To define ‘unsafe’ (therefore unavailable) driving routes: you select pathways and alleyways and any other unsafe roads and add 64 to the attribute.

SWDmode=1 DrvMode = 2

This means in calculating a shortest walking route it will not use those roads marked 32 above.

The MapInfo Workspace and Geoset

The MapInfo Workspace is a file that tells MapInfo which tables to load and how to display them. You may have corporate workspaces but it is recommended that you have your own for EMS Link as some changes are made to the file by the set up program.

One very important part of the workspace is that it must contain the table that was used to create the network.
If you do not include this table the program will fail.

N.B do not save the workspace with RouteFinder active as this will cause errors in the Workspace when you next try to use it

For users with just ONE GIS Link you will need to use the accompanying viewer supplied with Capita ONE then you will need to install it from the CD supplied by Capita.

In order for the viewer to pick up a network you will need to create a geoset. This is similar to the workspace created earlier. You will start geoset manager which can be found at C:\Program Files\Mapinfo\MapX 5.0\GeosetManager50.exe

Please refer to the help file if you need help to use this tool.

There is a tool in MapInfo Professional called “MapX Geoset Utility” it is loaded by using Tools > Tool Manager.

Please note you have to save the Geoset into the same folder as the workspace and it must be called “ems.gst”

The MXD and Basemaps.ini File

The MXD is a file that tells ArcMAP which tables to load and how to display them. You may have corporate MXD's but we suggest that you have your own one for this link.

One very important part of the MXD is that it must contain the table that was used to create the network. If you do not include this table the program will fail.

If you plan to use the free viewer then this will need to be installed from the CD as well.

In order for the viewer to pick up map files you will need to create a basemaps.ini. This is similar to the MXD created earlier except is not as comprehensive.

There are 3 Types of layer that can be defined; Vector, Raster, and TEXT.

The INI file defines the location of the SHP files or raster tiles and the zoom levels at which they are displayed.

The first entry is the LAYERS entry. This defines the number of layers to load in the INI file.

Next comes the layer definitions:-

LAYER*n*= Full path and name of the file to load (In double quotes eg ."C:\maps\ArcGisSample\Roads_polyline"

LAYERTYPE*n*= This is either "VECTOR", "RASTER" or "TEXT"

N.B For "VECTOR" and "TEXT" layers you should not include the "SHP" extension in the "LAYERn" line. For "RASTER" you should include the extension of the raster file eg "BMP" or "TIF"

MINSCALE*n*= The lowest scale at which to display the layer

MAXSCALE*n*= The highest scale at which to display the layer.

These entries are then repeated depending on the number of files required to be loaded.

TEXT layers are special layers and need to have the following fields defined.

TEXTSTRING – this is the field containing the string to be displayed

ROTATION – the angle to display the label

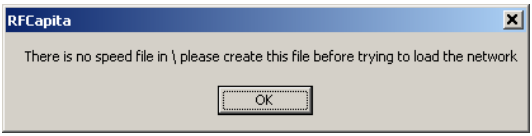
TEXTSIZE – the relative size of the text label.

The actual field names are set in the moviewer.ini file.

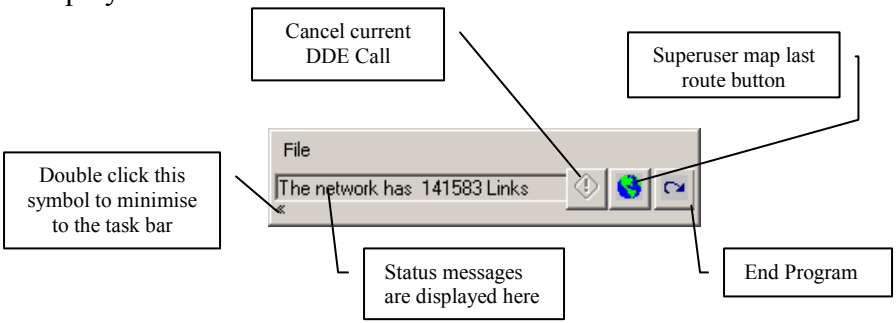
Completing the Set-up

The next step is to start the link. You can do this by selecting Start > Programs > Higher Mapping Solutions > RFCapita (assuming you have accepted the default installation)

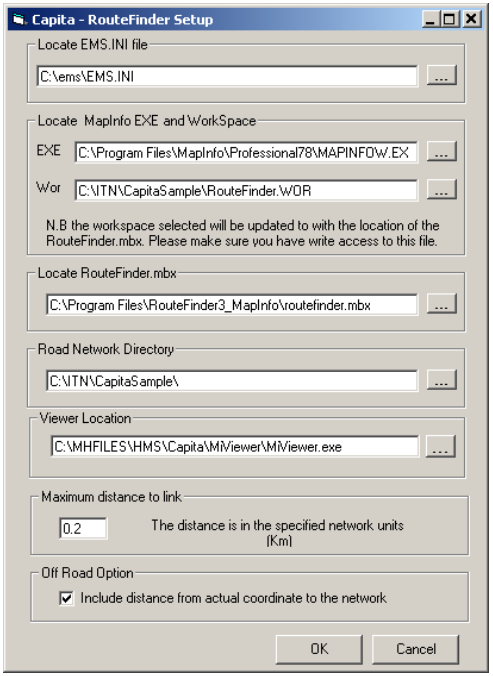
You will probably get the following message:-



Click OK to continue and then the RFCapita Form should be displayed.



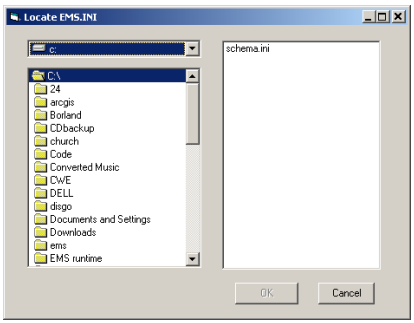
Click on the menu item File > Set up and the Capita – RouteFinder Setup form will be displayed



The purpose of this form is to locate all the files necessary for the set up of the link. As long as you can find the files requested then the link should set itself up.

In order to locate the files you can click on the ... buttons at the end of the text boxes.

You will then be presented with a file search dialog:-



Use this dialog to find the requested file or directory in the title bar.

The files to find are listed below:-

EMS.INI

This file is usually located in the root directory of the EMS folder. You may need to ask your EMS administrator to locate the file for you. This file is updated by this program to enable the GIS functionality within EMS.

Locate MapInfow.exe or ArcMap.exe and Workspace or MXD

You will need to find the mapinfow.exe on your local drive or on your network. This link will work with versions 4.12 and above of MapInfo Professional and version 8 and 9 of ArcGIS.

The MapInfo workspace to find will be the same workspace that you set up earlier. It is important that this workspace is used as this link will add a line of code to the file. You only need to find this file if this is a Superuser set up.

RouteFinder.mbx

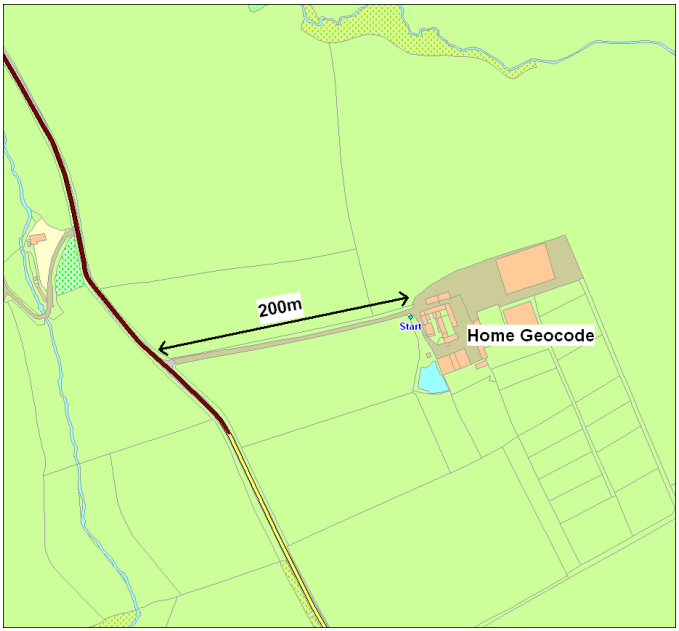
The default location will be filled in automatically but if you have installed into a different location then you will need to change this setting. You only need to find this file if this is a Superuser set up.

Road Network Directory

This will be the directory that contains the network table and RouteFinder files that were created (when you created the network) earlier.

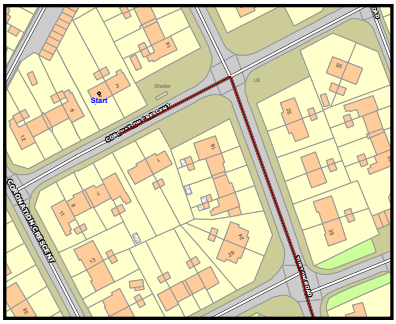
Maximum Distance to Link

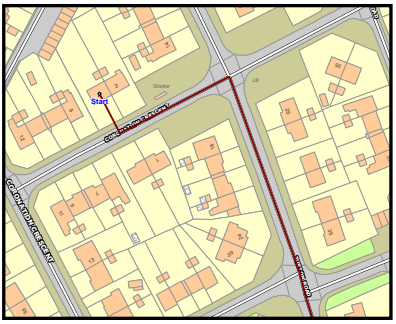
This is specified if you want to ignore points that are greater than the specified distance from the network. This may be used in rural situations where the student's dwelling could be some distance from the nearest road.



Add Off Road Distance

You also have the option to add the distance from the point specified by the EMS system to the nearest point on the network. This is explained by the two pictures below:-





In the first image the dynamic segmentation goes to the nearest point on the network. In the second image the route includes the nearest point on the network to the point defined by the Capita EMS system

Managing the Network

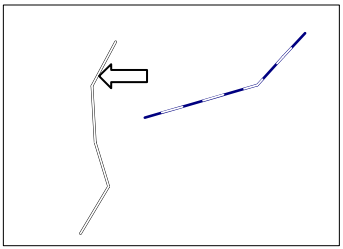
Introduction

The distance values calculated and their 'fit for purpose' are dependent upon the underlying network of roads and footpaths and their attributes. The Local Authority is responsible for their definition and maintenance. Capita and Higher Mapping Solutions cannot be responsible for this function.

One of the advantages of RouteFinder is that you are able to change the network to add in new roads or your own pathways. When this is done you must obey certain rules in order to maintain topology. You should be familiar with the GIS and editing data tables before trying this.

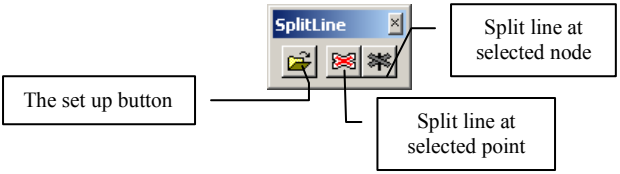
Topology is simply that the link must be split at the junctions. Before continuing you must ensure the RouteFinder network is closed. To do this go to RouteFinder > Network > Close Network.

In this picture we have a road where we want to add a path:-

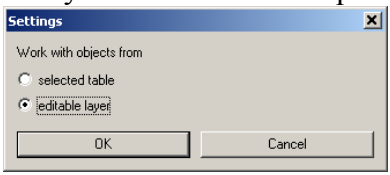


To do this we need to split the road at the point indicated by the arrowhead. For this we have supplied a free internet utility called Splitline_Eng.mbx (MapInfo only). This will be located on the Link software CD.

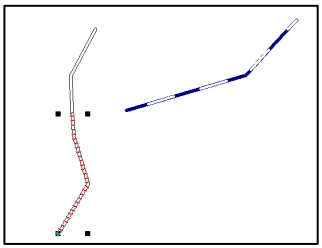
(MapInfo only)
Use Tools > Run Mapbasic Program and then navigate to the location of the MBX. When it is active you will see a new tool added to MapInfo Professional. It looks like this:-



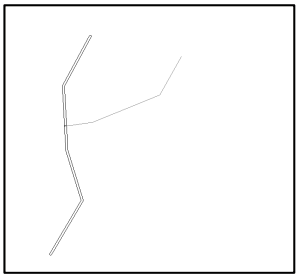
When you click on the set up button you will see this form.



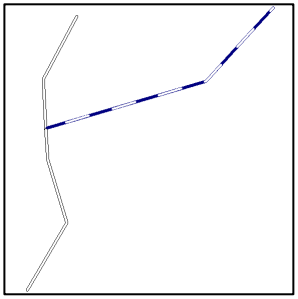
It is best to work with the network table in editable mode. This is set via layer control in the GIS software.



When the road line is then clicked with the "selected point" you will see the line split in two. You are now ready to draw the path starting at the new location. (Hint: pressing the "s" key in MapInfo activates the "snap" mode. This indicates clearly where the line will start from.)



Using the Polyline drawing tool trace the new path and then double click to finish.



You should now see the new line added. You can add as many links as needed maintaining the topology in this fashion.

You should ensure that if you are adding a road between two roads, then make sure both end of the road connect correctly to the network

When the new link is digitised you should then add the attributes for this link. The easiest way to do this is to use the information tool in Mapinfo – click on the new link and then type in the new data in the information window.

Click the save button for go to File > Save table to make sure all you hard work is safe!

Once you have finished editing and adding the attributes for the new line you should recompile the network before trying to use it through EMS.

Using the Link

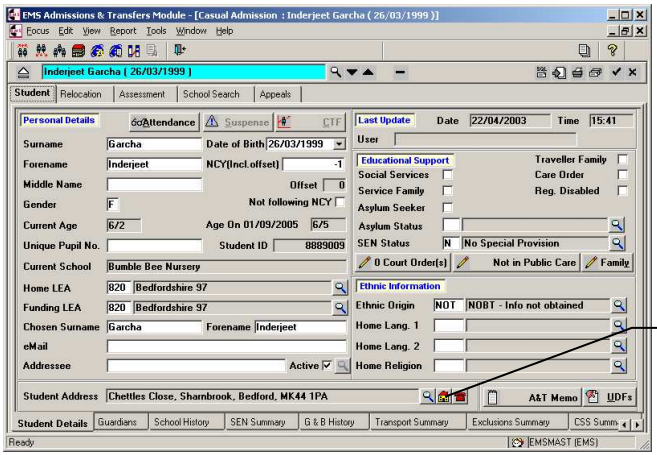
There is no further set up necessary. EMS should now know that GIS is to be used. If EMS has been running during this installation then you will need to restart EMS for it to detect the presence of the GIS system.

When requests are made by EMS the link will handle the requests and decide if the GIS is needed or if it can handle the request by itself.

If you try to use a Superuser function in a user mode you will see this message:-

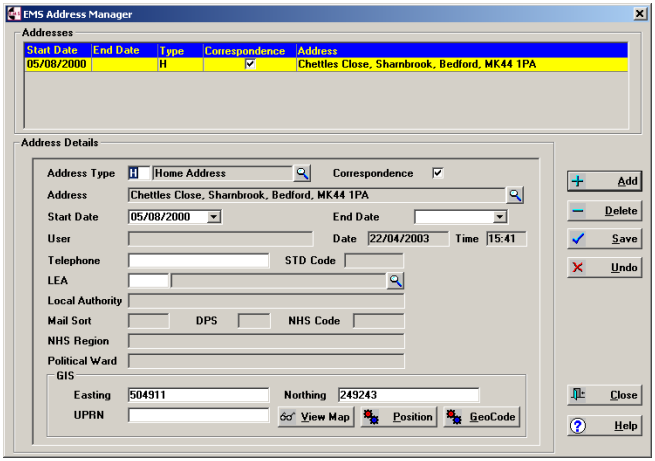
Geocode an Address

In order to geocode an address you will need to be on the Student | Student Details tab or Base | Sites tab within one of the modules of EMS. An example of this screen is shown below:-



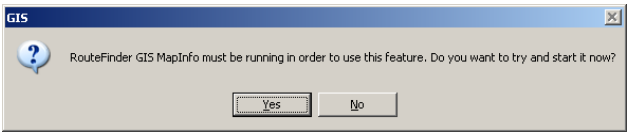
The 'House' button activates EMS Address Manager to access the geocoding option

When the 'House' button is pressed you are presented with the following EMS Address Manager form:-

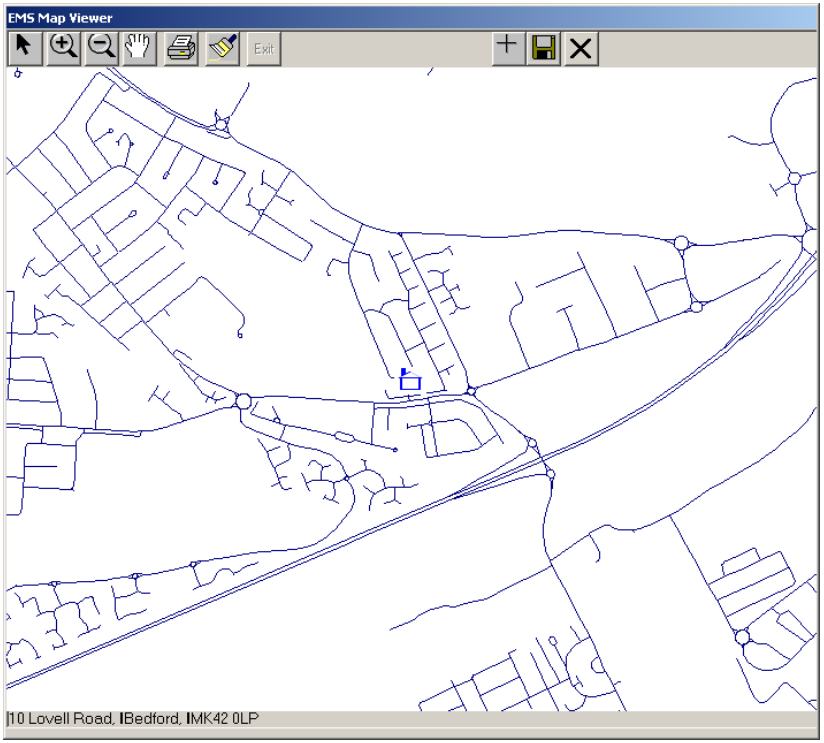


In order to place the point on the map you press the "Position" button

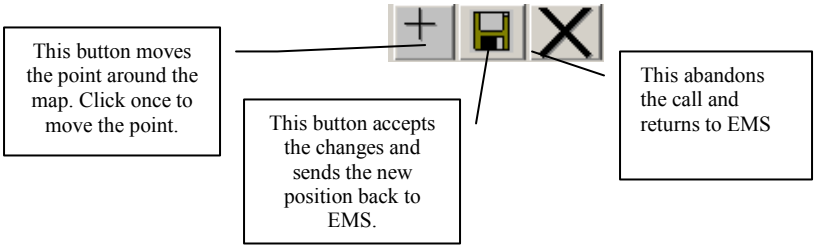
If the EMS Link is not currently active then this dialog will be displayed:-



You must click “Yes” for the process to continue
This will then start the link and send the command by loading the maps and start RouteFinder. If the record already has coordinates then the map will be centred on this location. If no coordinates exist then the map will be opened at its default location. The default location is the position defined by the Geoset in MapInfo viewer or the extents of the map in ArcGis Viewer.



The following buttons are added to the bar above the map



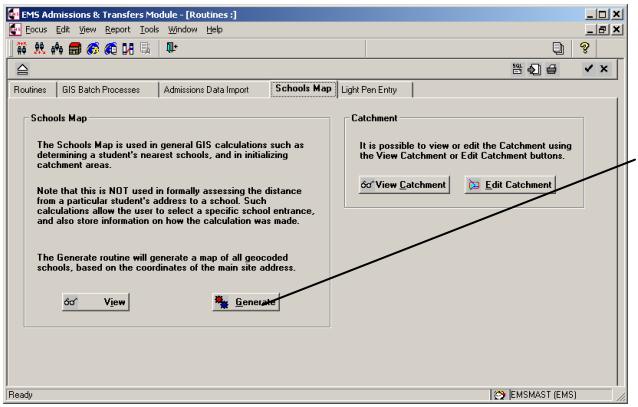
NB. The exit button will be greyed out to stop you exiting without pressing one of these buttons

'Generate Schools Map' Routine

In order to use the RouteFinder EMS Link certain files need to be set up in order for the link to run in normal mode. You will need to have geocoded all your bases before you can run this option. This function can ONLY be carried out by the Superuser.

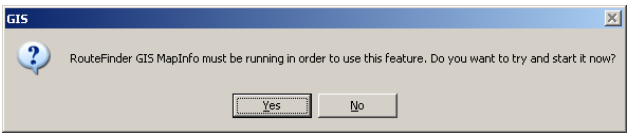
Any time a school is added, deleted or re-positioned you will need to re-run this routine.

The 'Schools Map' option is found in Tools | Routines within Admissions & Transfers and Transport modules and against any Base in Bases and Population Forecasting modules. Selecting this option displays the following form:-



This button sets up the files for the link

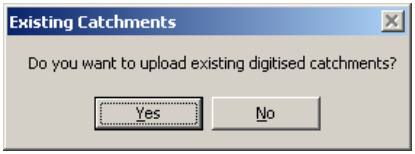
If the link is not currently active then this dialog will be displayed:-



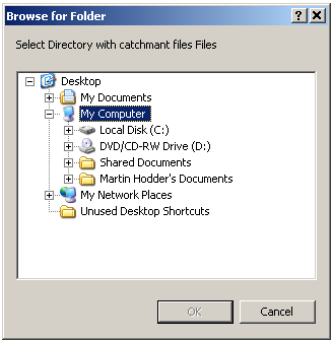
You must click “Yes” for the process to continue

This will then start the link and send the command. The link will start and because this operation requires the Superuser function it will start the GIS software.

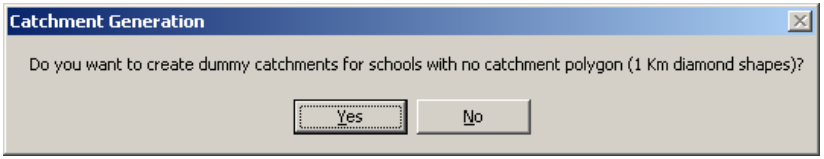
If you want to load existing catchments it can be done at this stage. You will see this message:-



If you click “Yes” then you need to select the folder containing the catchments to use.

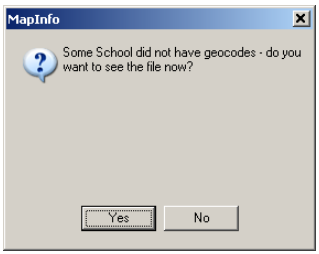


Next you will get a dialog asking if you want to create dummy catchments



These catchments are created for any base that does not have a catchment already. They are 1 Km diamond shapes that can then be editing in the GIS program.

The files will then be set up. When the process had completed you may see this message:-



If you want to see the file then click "Yes" and it will be display the list of schools which are not geocoded.

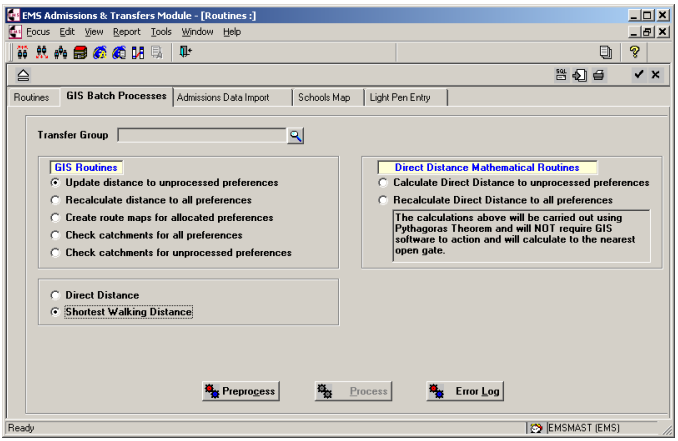
Add geocodes to the listed schools and run 'Generate' again. When all schools have been processed correctly you will see this message and EMS should become active again.

For ArcGIS there is also an EMS tool available to upload the catchments files and this can be found on the CD in a folder called CatchmentConversion

The structure of the catchment tables is also defined in the appendices of this document

Batch Routines

The link will also process a whole transfer group, or sub group within it, at once. Within Admissions & Transfers Tools | Routines | GIS Batch Process will display the following form:



All GIS Routines can be run in user mode.

To run any of the routines on this tab first select the transfer group, then sub group if using Offer Scheme. Then select the batch GIS Routine required.

Using GIS you will normally select the “Shortest Walking Distance” option although GIS can be used to generate the direct distance also.

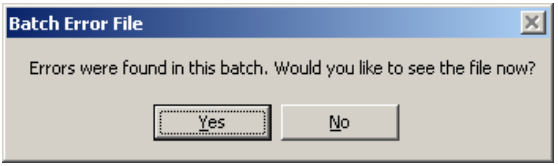
When you have selected your option you click the “Preprocess” button. The progress bar is displayed and then a short report is shown at the bottom of the form.

If you have records in the error log then you should review them using the "Error Log" button and then, using relevant EMS tabs / functions correct the errors before continuing. Likely issues are that the student or Base address is not geocoded.

If necessary use Preprocess again to check that all now have geocodes. Once you are happy with the selection and are ready to proceed, click the "Process" button.

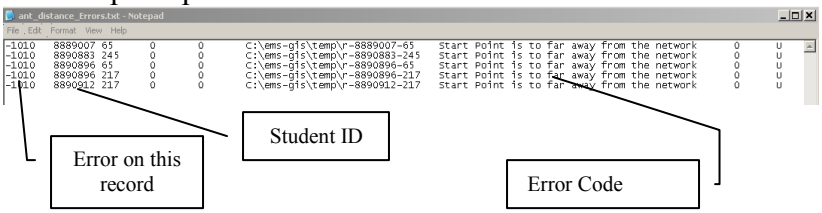
You may see a progress bar like this (if there are more than 5 records):-

If errors are found with the batch process then you will see the following dialog box:-



If you click "Yes" the processing results are displayed.

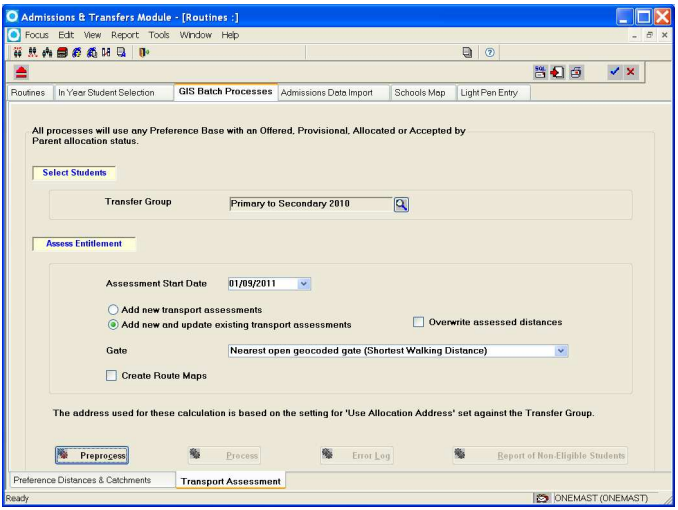
The file opens in Notepad and shows all the Error records found. The second column in this file is the student ID. Here is an example report:-



The error codes can be:-
Start Point is too far away from the network
End Point is too far away from the network
Not route between points

For all of those student's processed the new values are read into the database. Having corrected those with errors you can run the process again for unprocessed preferences.

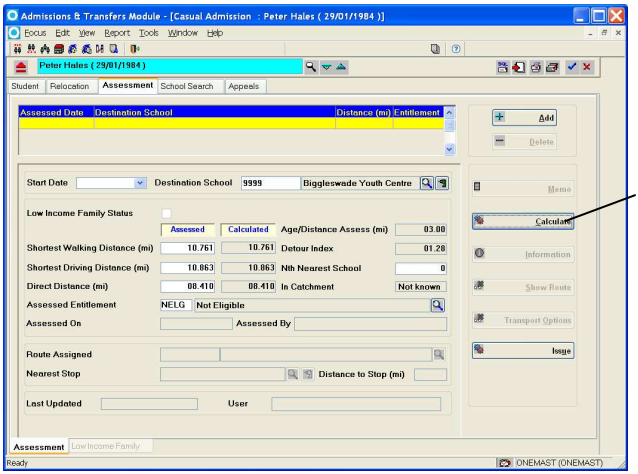
Your can also do Batch Transport assessment by using the tab at the bottom of the screen.



Run an Assessment

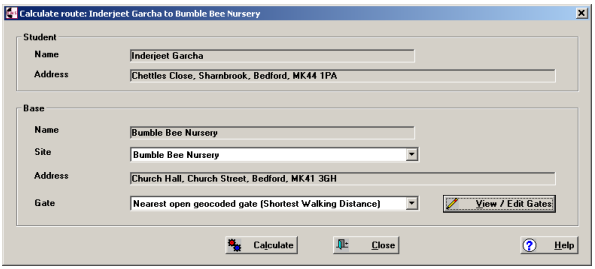
This functionality is shared between Admissions & Transfers and Transport. It is located against a student.

Ensuring that the student and base addresses are geocoded and the schools maps have been run you can create an assessment for a student to a nominated base. The tab is shown below:-



This button activates the screen to generate a GIS route.

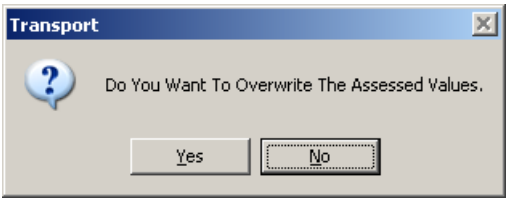
When the “Calculate” button is pressed another screen is presented to you.



Select the required option from the gate drop down box

Next you press “Calculate” and the route is generated. If the link is not active you will be prompted to start it. You must press “Yes” in order for this function to work.

If assessment route distances already exist then you will be prompted to overwrite these values.

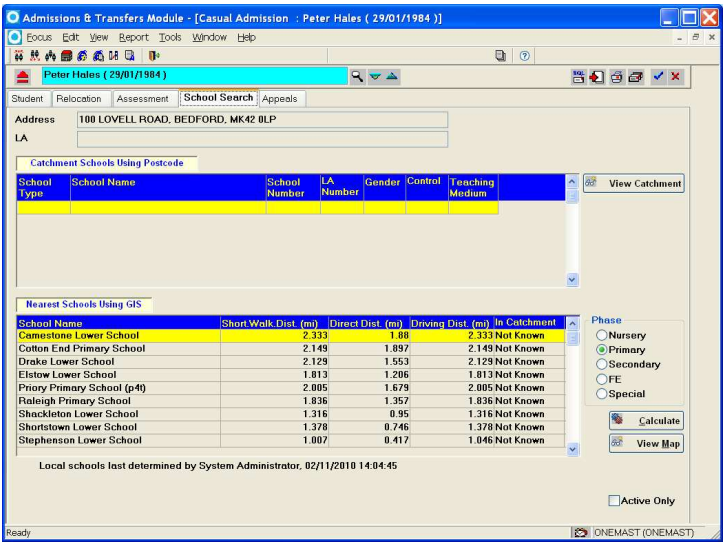


The values are then placed into the correct boxes on the form and the nearest school should be displayed.

Run a School Search

This functionality is shared between Admissions & Transfers and Transport. It is located against a student.

Ensuring that the student and base addresses are geocoded and the schools maps have been run you can create a school search. The tab is shown below:-



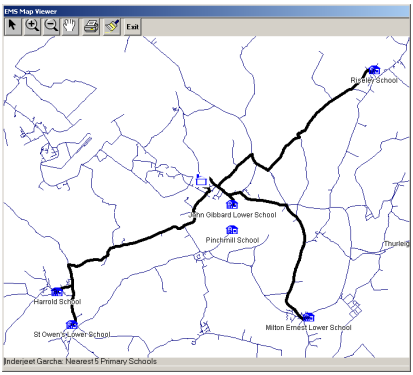
When you press the calculate button the 5 nearest schools are located. It is possible that less than 5 schools will be returned and this is usually due to validations within EMS.

Both shortest walking and direct distance are returned. If you are using catchment checking then each one is checked and displayed in the “In Catchment” column. You can sort the results by clicking the “Routed Dist (mi)”, Driving Distance(mi) or “Direct Dist (mi)” labels on the form.

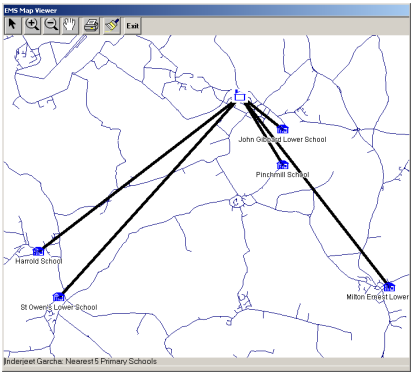
If you just want direct distance then you need to add the following line to the capitaems.ini file:-

SCHOOLSEARCHMETHOD=DIRECT

Then both the routed distance and then direct distance columns will have the same value.



Shortest Walking Distance Result



Direct Distance Result

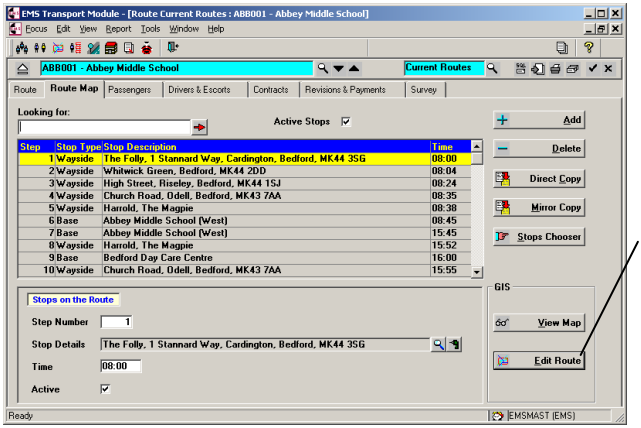
You can also set up the number of schools to return by changing the following INI file setting:-

NUMSCHOOLSTOFIND=10

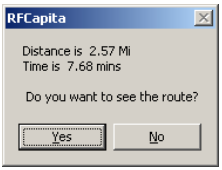
Simply change this setting to the desired number of schools you want to be returned.

Bus Route Display

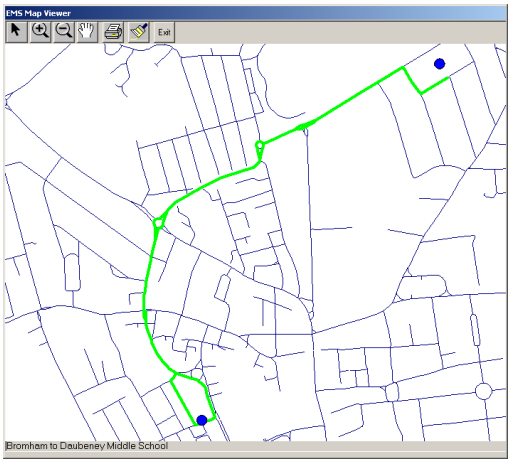
This option is available in the Transport Module against a Route. Having chosen a route the Route Map tab will display as follows:



Click on Edit Route to display the geocoded stops on the route.



The result is displayed and then you have a choice to view the route



The map will have large blue circles to represent the stops.

If a route has not been generated then it will be calculated and a route generated. If a route has been calculated and the order of the stops have been changed or stops have been added or removed then the route is regenerated.

If you are a Superuser you can access additional functionality within RouteFinder:

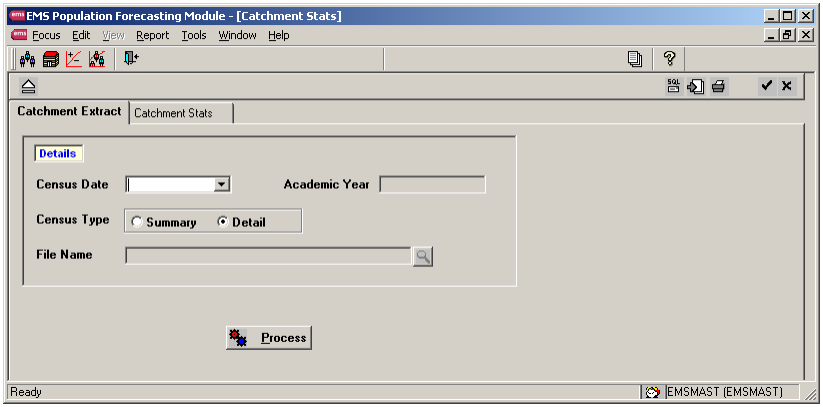
- using the 'travelling salesman' options within RouteFinder to find the total distance of the route
- specify such things as use the order specified by EMS (points already optimised)
- define start and end points and get RouteFinder to optimise the points in between.

Please see RouteFinder help file for more information on this function.

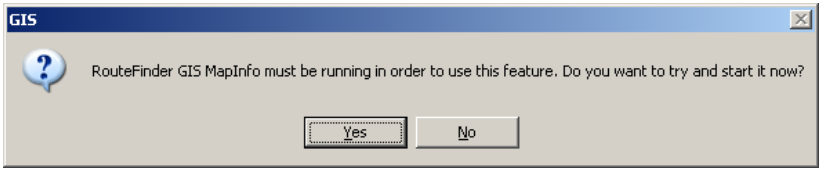
Population Forecasting

This option is available in the population forecasting Module. It will help to give an estimate for students in a catchment area for a date in the future. You should refer to the EMS documentation for instructions on setting up the data for this function. It is also absolutely necessary for you to upload your school catchment data for primary and secondary schools. Please see the section on the "Generate Schools" function for instructions for uploading your catchments.

When you have started the population forecasting module you need to go to Tools > Catchment stats and you will see the following screen:-

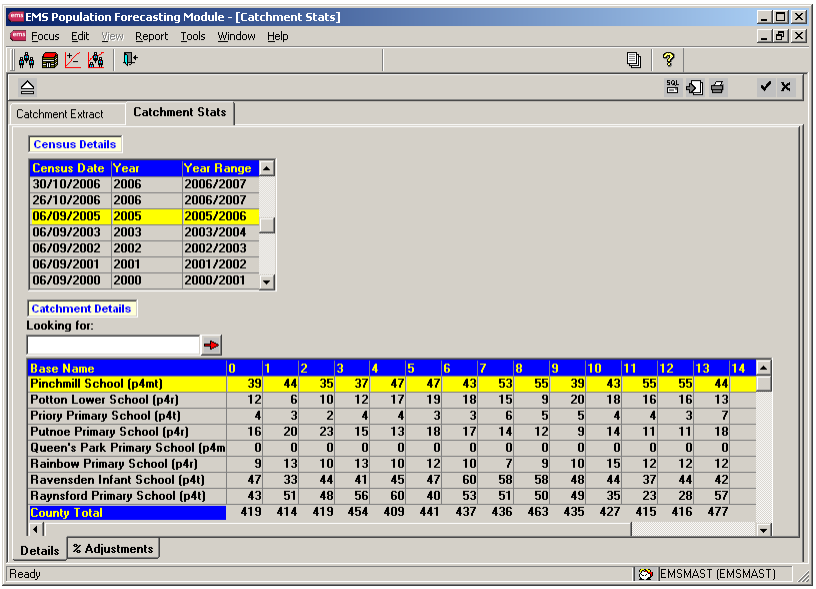


After entering a target census date and clicking on "Detail" you may get the following message:-



You must click on “Yes”. The link will show “Calculating Catchment Stats” and you will see a progress indicating the progress of the calculation.

Once this completed you can click on the catchment Stats tab and you will see a result screen like the one below:-

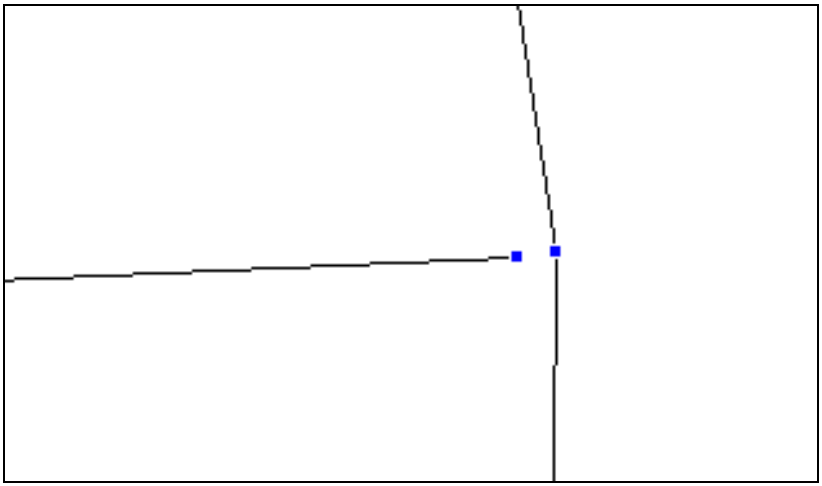


You should then refer back to the EMS documentation for further information on how you use this data.

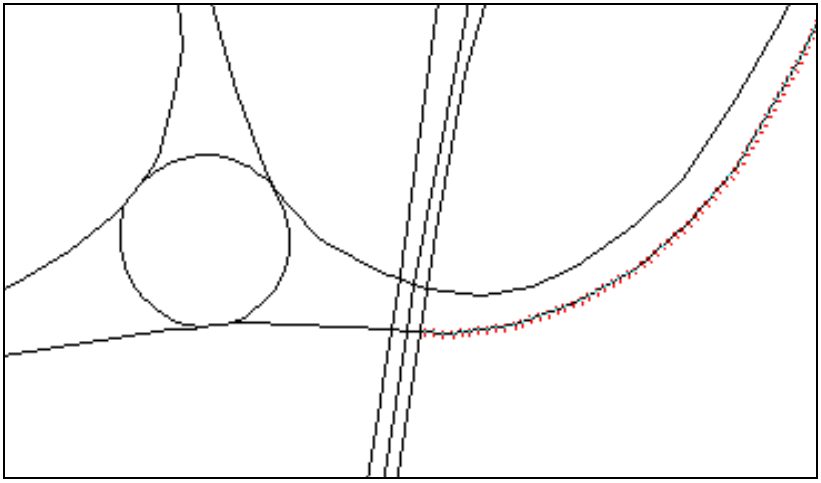
Possible Network Errors

Below is shown some examples on networks, which are **NOT** correct, but all look correct unless you check out the details:

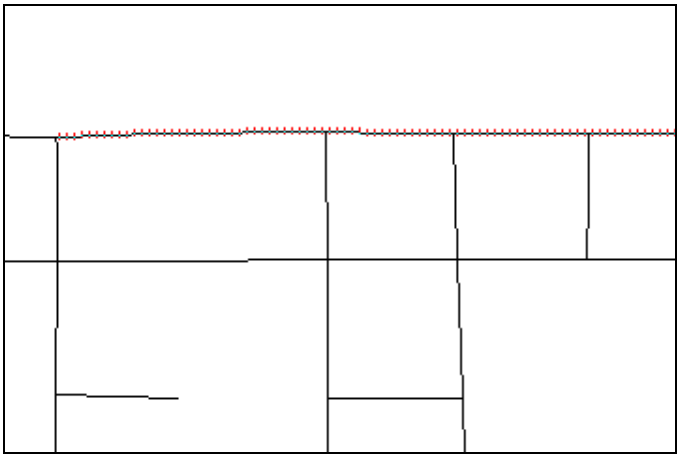
Example 1: Missing snap at an intersection
This means the network doesn't connect and the movement to / from the disconnected section, isn't possible. In the example below, the gap is just 1 meter and can't be seen at normal zoom levels.



Example 2: Split at overpass / underpass
This means a lot of impossible turn movements are suddenly made possible. This is a typical problem with TIGER data.

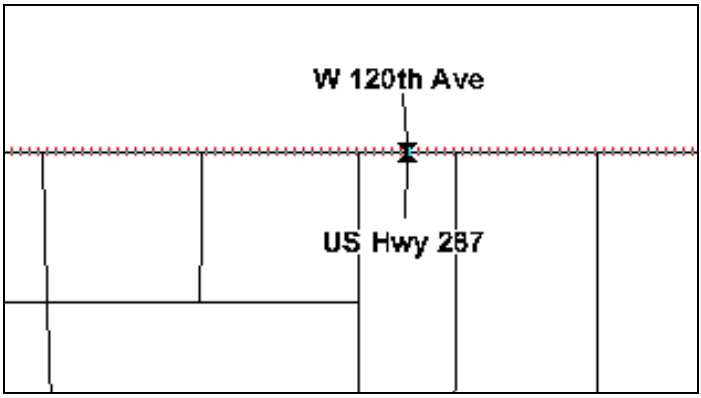


Example 3: Doesn't split/break at intersections
This means turns are not possible at most intersections.



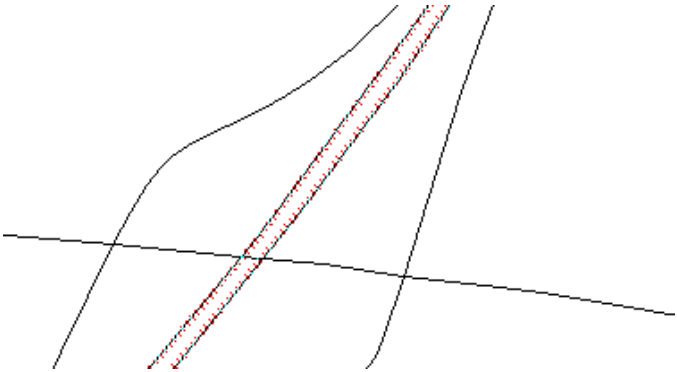
Example 4: Double digitization with two street names.

Not a really big problem, but the result of a route calculation may include one of the two streets in a more or less random fashion.



Example 5: Multi sectioned Polylines

Polylines with more than 1 section are ignored. They will not be part of any route.



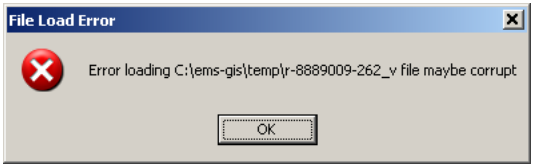
Known Issues

Version 1 – 14th June 2005.
Version 2 – 15th December 2005
Version 2.5 – 30th October 2006
EMS Version 3.25

Issue 1 - The Free Viewer does not display the route.

Symptoms

Some times within EMS when "View Route" is selected EMS comes back with the message:-



The actual file it refers to will change but the general message is the same

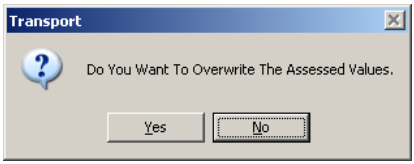
Status

This was fixed in version 3.21 of EMS

Issue 2 – The assessment calculation seems to run twice

Symptoms

When asking for a route assessment some time this dialog appears twice:-



Status

This is fixed in version 3.21 of EMS

Issue 3 – EMS appears to stop running the GIS routines

Symptoms

When requesting any GIS function the system fails to respond.

Status

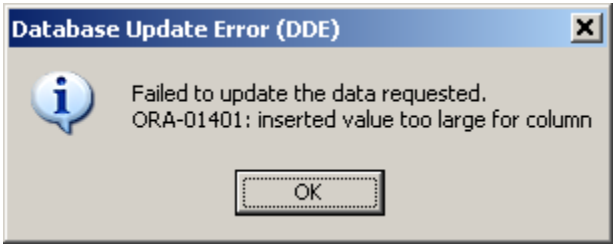
This normally happens when you have requested a GIS function such as “position an address” or “display bus route” and you do not press one of these buttons in the Superuser mode:-

Close the systems down and restart EMS.

Issue 4 – Problem when using gates on schools.

Symptoms

When you run an assessment you may get the following message:-



Status

This happens when gates have been defines with decimal points. If you set all gates to have “00” after the decimal point the system will work.

Issue 5 – Assessment Route does not display after calculation

Symptoms

When running an assessment calculation and you have entered a start date and clicked save. You click on “Show Route” but then you get the following message:-

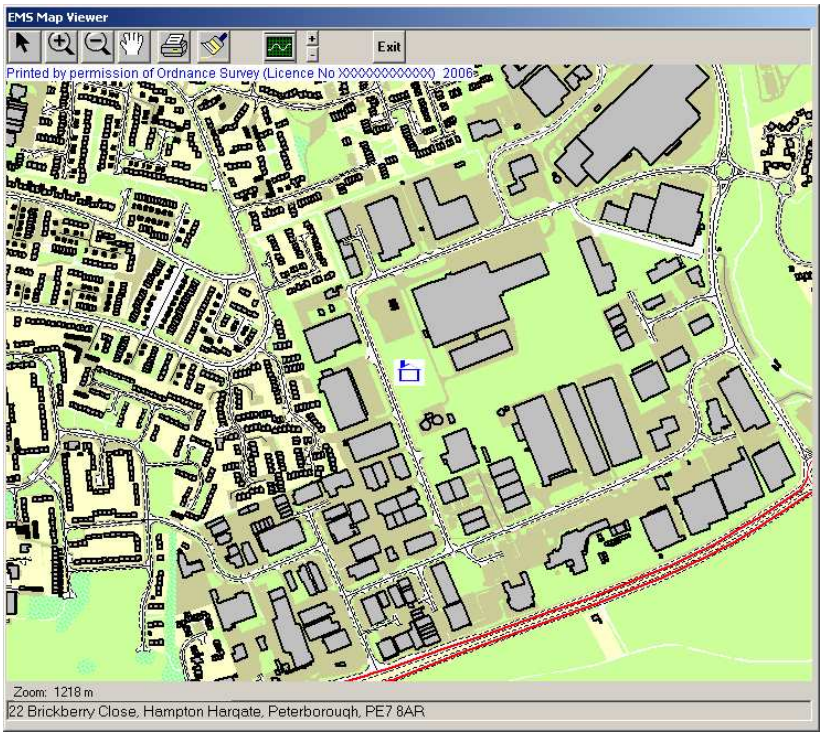
Status

This affects the MapInfo version for the link with EMS 3.25. Higher Mapping Solutions and Capita are currently investigating the problem.

Appendices

The EMS viewer Application

The EMS Map viewer is a free runtime distribution for use with EMS. You do not need the EMS link to be able to view data. However there is no point having the viewer if you do not have the EMS link in place somewhere within your organisation.



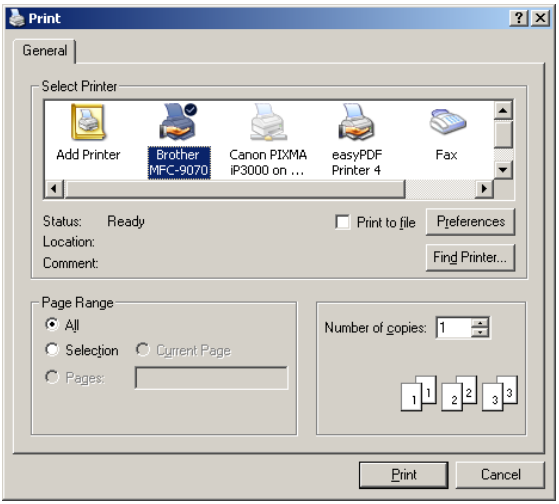
When the map is displayed you have the following functions available:-

 Activate the tools by clicking on the icon. Then in the map you can click to zoom in or you can click and hold the mouse button and draw a rectangle around the area you are interested in seeing. The map will then zoom in to that location.

 Activate the tools by clicking on the icon. Then in the map you can click to zoom out

 Activate the tools by clicking on the icon. You can then click and hold the mouse button down. You will be able to move the map in much the same way you might move a paper map on a desk.

 Activate the tools by clicking on the icon. You will then get the printer selection box.



You can then select the printer and when you press Ok it is sent to the printer. You can only print A4 sized copies of maps.

 This is the Zoom to route button. When this button is clicked the map will automatically resize to contain the calculated route.

 These buttons will zoom in and out by a set amount from the centre of the map

This button will close the viewer.

You will need to put in the OS copyright statement into the miviewer.ini file.

OSCOPYRIGHT= (put copyright statement here)

The year is automatically appended to this statement and does not need to be added.

If you are installing the link on its own then you will need to make some edits to some ini files.

Edits to the EMS.INI file add the following lines:-

For MapInfo

[GIS]
Product=RouteFinder GIS MapInfo
GISViewer=c:\ Program Files \MiViewer\MiViewer.exe
MapsDir=<Directory to network files>
GISDir=C:\ems-gis\temp

For ArcGIS

[GIS]
Product=RouteFinder GIS ArcView
GISViewer=c:\ Program Files \MoViewer\MoViewer.exe
MapsDir=<Directory to network files>
GISDir=C:\ems-gis\temp

You will also need to ensure the C:\ems-gis\temp directory exists on the local PC.

Using Catchments with Capita EMS Link.

If you do not have catchments at the moment you can digitise them in the GIS of your choice. You need to create 5 separate tables and they will need to be called “Catchments_1”, “Catchments_2” etc.

These **GIS Base Types** are linked to **DfES Categories** within EMS:

GIS Base Type	***DfES Category***
Nursery	• NUR
Primary	• PRI • INF • MIP (Middle School deemed Primary) • JUN
Secondary	• SEC • SES (Secondary School with Sixth Form) • MIS (Middle School deemed Secondary)
Further Education	• FE
Special	• SP • PRU

Each file should only have two columns and they need to be formatted as follows:

Column Name	**Data Format**
School_ID	Integer
Name	Character (100)

Some manipulation will probably be necessary on each catchment file.

The values held in the **name** column do not affect the import. There is no requirement for this column to even contain any data, however the column header **name** must be present

Catchments_1 = Nursery Schools
Catchments_2 = Primary Schools
Catchments_3 = Secondary Schools
Catchments_4 = FE Establishments
Catchments_5 = Special Schools

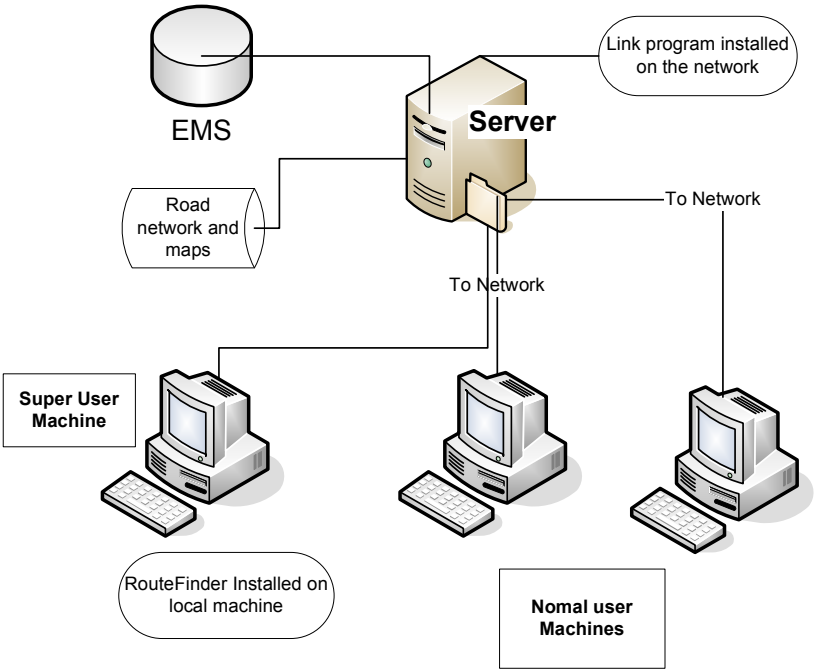
Each base needs to have its own catchment, even if more than one base share the same catchment. If you do not have a catchment for a base then they will be created as a part of the generate process.

For MapInfo the catchments can be uploaded via the “Generate Schools” routine. Please refer to this section of the manual for more information.

In order to use catchment checking you should edit the CAPITAEMS.INI file and make sure there is a line that says

CHECKCATCHMENT=1
.

Diagram of Implementation



The EMS link program should be installed at a network point so all machines can access it at once. This is because the generate schools function produces files that all the normal users need to access.

RouteFinder (Superuser mode) has to be install on a local disk

All the maps and road network should be accessed from a server

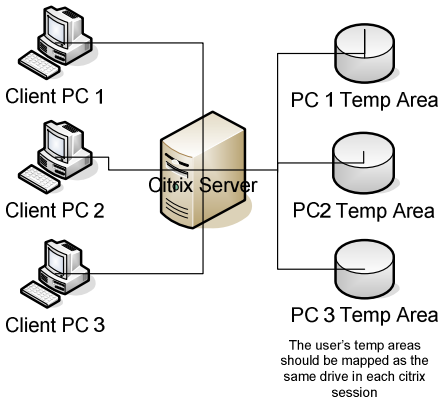
Setting up the EMS link on Citrix.

It is now possible to set up the link in a Citrix environment by ensuring each user has some specific settings and some manual edits to the EMS.ini and miViewer.ini or moViewer.ini.

You still have a licence restriction when using Citrix and it is up to each local authority to ensure they do not violate

The key thing to do is to make sure there is an area on a disk available that is unique to each user. This should then be mapped as a drive.

For example (it can be any drive mapping) let us say we set it to U:\EMS-GIS\TEMP where U:\ is a specific area to the user. This means if we look at the diagram below if Client PC 1 tries to view a route and writes files to U:\EMS-GIS\TEMP and at the same time Client PC 2 and Client PC 3 try to view a route at the same time and also write to U:\EMS-GIS\TEMP then the files will not overwrite each other.



Other than this the link should be set up as normal as if setting up on a client machine.

All Citrix clients will need to run the EMS link in their own memory space. This will enable the DDE conversations to take place.

Next we need to edit the EMS.INI file.

In the [GIS] Section make the following change:-

GISDir=U:\EMS-GIS\TEMP

Next you should edit the moViewer (for ArcGIS) or miViewer (for MapInfo) INI file. This can be found in the location you installed the viewer application.

Open the appropriate INI file and then in the [Setup] section you should set the following parameter:-

VIEWER= U:\EMS-GIS\TEMP

This should now enable the EMS link and the viewer to operate over Citrix.

Quick checklist

You can use this list to quickly check you have completed all the necessary steps. See the manual for a more detailed explanation.

- ☐ Install RouteFinder (See Page 6)

- ☐ Install Capita Link (See Page 9)
  - ☐ Set up Superuser
  - ☐ Set up normal users

- Create Network (See Page 10)
  - ☐ Assign Attributes
    - Different road classes
    - One way streets
    - Multi Modal attributes
  - ☐ Run Network create function

- ☐ Create Workspace / MXD (See Page 12)
- ☐ Create geoset for viewer / INI file for ArcGIS (See Page 13)

- ☐ Generate Schools (See Page 27)

Once all these steps are completed the link should be able to be used on all the machines.

Troubleshooting

Superuser functions stop working

This is normally because the INI file has changed or you have recompiled the network or changed the workspace file.

To fix this simply start the link manually Start > Programs > Higher Mapping Solutions > RFCapita

On the form that is now displayed click File > Set up

Fill in the boxes again and the functions should be restored

New digitised route does not work

This can be more complicated to work out. You should make sure you new added link should obey the rules set out in the network editing chapter.

It is possible for the RouteFinder settings to be changed when the road network file gets re-created. You should check while running RouteFinder in MapInfo or ArcGIS that the shortest path is selected in the route options if you are doing the shortest walking route.

The MapInfo Workspace keeps prompting for Route.tab RouteLabels.tab etc.

This happens because you have changed your workspace and then saved it while RouteFinder is active. You will have to recreate your workspace and ensure RouteFinder is closed when you save it.

When the system does not perform as expected then you can report the error to Capita ONE support. They may ask you to generate the Log files as well as screen shots.

To produce the log files please follow this process

1) Locate the EMS.INI file your system uses.

2) In the EMS.ini file find the [GIS] section and see where the Commandline is pointing

For instance:-

commandline=M:\Capita\ONEGISlink\RFCapita.exe

3) Find the folder where the ONE GIS Link is installed.

4) Open the capitaems.ini file and turn logging by setting it = 1
Eg. LOGGING=1

5) Then run the process that is causing a problem.

This will create a file called “RFcapita.txt and this will be in the same folder as the capitaems.ini file. Send this file along with the viewcmd.txt (from the ems-gis\temp folder) to Capita ONE support.

6) Then set logging back to 0 in the Capitaems.ini file, otherwise all calculations will be much slower.

If the Map Viewer is generating an error then generate the RFCapita.txt as above but also generate the log file for the viewer by following this process.

1) Locate the EMS.INI file your system uses.

2) In the EMS.ini file find the [GIS] section and see where the GISViewer is pointing

For instance:-

GISViewer=M:\ Capita\MiViewer\MiViewer.exe

3) Find the folder where the map viewer is installed.

4) Open the miViewer.ini and moViewer.ini file and turn logging by setting it = 1

Eg. LOGGING=1

5) Then run the process that is causing a problem.

This will create a file called “viewer.log” and this will be in the same folder as the viewer EXE file. Send this log file along with the viewcmd.txt (from the ems-gis\temp folder) to Capita ONE support.

6) Then set logging back to 0 in the INI file, otherwise all mapping operations will be much slower.

Glossary

Some of the common phrases and words are listed here.

Geocodes	The easting and northing values which are the Ordnance Survey grid references for a point on a map
GIS	Geographical Information System
Superuser	The person who has access to the complete installation from their PC i.e. MapInfo or ArcGIS, RouteFinder and EMS Link
User	EMS Link with access to the Superuser created maps on the network.
Workspace	A collection of MapInfo tables put in one view to form a map base.
Geoset	A different version of the above file used in the MapInfo version of the viewer
MXD	A collection of ERSI Map files put in one view to form a map base