

SIEMENS TRAFFIC CONTROLS

Sopers Lane

POOLE

Dorset

BH17 7ER

SYSTEM/PROJECT/PRODUCT: STC VMS UTC

UTC MAP EDITOR AND DISPLAY

This is an unpublished work the copyright in which vests in Siemens plc. All rights reserved.

The information contained herein is the property of Siemens plc and is supplied without liability for errors or omissions. No part may be reproduced or used except as authorised by contract or other written permission. The copyright and the foregoing restriction on reproduction and use extend to all the media in which this information may be embodied.

ISSUE STATE

Note: Source of documents is shown under Type as below.

1=Paper, 2=VAX, 3=Microfilm, 4=CALTEXT Disc, 5=DECmate Disc,

6=Paper Insert, 7=MAC Disc, 8=LIFESPAN, 9=SUN, 10=AMW.

The document comprises the following components:

<u>Pages</u>	<u>Current Issue</u>	<u>Type</u>	<u>Part ID</u>	<u>File ID</u>
All	28	10	666/HC/16940/000	HC16940.DOC

CONTENTS

- 1. INTRODUCTION.....1**

 - 1.1 Purpose1**
 - 1.2 Scope1**
 - 1.3 Related documents.....1**
 - 1.3.1 Parent Documents1
 - 1.3.2 Kindred Documents1
 - 1.3.3 Reference Documents1
 - 1.4 Definitions.....2**
 - 1.5 Issue state and amendment2**

- 2. MAP EDITOR AND MAP DISPLAY.....3**

 - 2.1 Introduction.....3**
 - 2.2 Conventions3**

- 3. MAP EDITOR.....4**

 - 3.1 Overview4**
 - 3.2 Screen Layout.....4**
 - 3.2.1 Drawing area5
 - 3.2.2 Title bar5
 - 3.2.3 Menu bar6
 - 3.2.4 Tool Box6
 - 3.2.5 Colour Palette.....6
 - 3.2.6 Grid (optional).....6
 - 3.2.7 Horizontal / Vertical Scroll Bars6
 - 3.2.8 Status Line.....6
 - 3.3 Pixmap Editor6**
 - 3.4 Copying Files from a PC to a UTC System Folder7**
 - 3.5 File Menu8**
 - 3.5.1 New8
 - 3.5.2 Open9
 - 3.5.3 Import.....10
 - 3.5.4 Delete10
 - 3.5.5 Exit.....11
 - 3.6 Edit Menu11**
 - 3.6.1 Change Title11
 - 3.6.2 Select Feature11
 - 3.6.3 Select Map.....12
 - 3.6.4 Select All.....12
 - 3.7 Layout Menu12**
 - 3.7.1 Resize Map.....12
 - 3.7.2 Insert Background Map.....12
 - 3.7.3 Insert Bitmap Image13
 - 3.7.4 Group and Ungroup13
 - 3.7.5 Map Layers13
 - 3.8 UTC Menu14**
 - 3.8.1 Create Live Update Object.....14
 - 3.8.2 Create Group Symbolics18
 - 3.8.3 Change SCN.....19
 - 3.8.4 Attach Map.....19
 - 3.8.5 User Text.....20

3.8.6	Attach Command	20
3.8.7	Display Information Box.....	21
3.8.8	Highlight When Faulty.....	21
3.8.9	Highlight When Active	21
3.8.10	Blinking On/Off	21
3.9	Fonts Menu.....	21
3.10	View Menu.....	22
3.10.1	Map Layers.....	22
3.10.2	Display Grid	23
3.10.3	Refresh Window.....	23
3.10.4	Hotzone Information Box Window Mode.....	23
3.11	Zoom Menu	24
3.11.1	25% - 1600%	24
3.11.2	Select Area	24
3.11.3	Fit to Window.....	24
3.11.4	Other.....	24
3.12	Options Menu.....	25
3.12.1	Pixmap Editor.....	25
3.12.2	Unlock Background Maps.....	25
3.12.3	Snap to Grid	25
3.12.4	Grid Options.....	25
3.12.5	Name Map Layers	26
3.12.6	Preferences	27
3.12.7	Web Export Options.....	28
3.12.8	Save Layout.....	28
3.12.9	Save Options	28
3.12.10	Restore Options	29
3.13	Help Menu	29
3.13.1	Help On Context.....	29
3.13.2	Help On Window	29
3.13.3	Help On Help	29
3.13.4	Help On Version.....	29
3.13.5	Status Line Area	29
3.14	Tool Bar - Basic Draw Icons	29
3.14.1	SHIFT and CONTROL keys.....	30
3.14.2	Selection Mode Pointer	30
3.14.3	Create a Line	30
3.14.4	Create a Polyline	30
3.14.5	Create a Polygon	31
3.14.6	Create a Bezier Curve.....	31
3.14.7	Create a Quadrant.....	31
3.14.8	Create a Circle Arc	32
3.14.9	Create an Ellipse.....	32
3.14.10	Create a Rectangle.....	33
3.14.11	Create a Rounded Rectangle	33
3.14.12	Create a Text Object.....	34
3.15	Tool Box - Live Update Icons.....	34
3.15.1	Create a Live Update Object	34
3.15.2	Create Group Symbolics	34
3.16	Tool Box - Style Edit Icons.....	34
3.16.1	Add a New Colour to the Palette.....	34
3.16.2	Set Line Width	34
3.16.3	Set Line Style	35
3.16.4	Set Fill Pattern	35
3.16.5	Set Arrow-Head Style	35

- 3.16.6 Rotate Text 36
- 3.17 Tool Box - Editing Facilities.....37**
 - 3.17.1 The Clipboard.....37
 - 3.17.2 Cut.....37
 - 3.17.3 Copy37
 - 3.17.4 Paste37
 - 3.17.5 Delete37
- 3.18 Tool Box - Alignment and Grouping.....38**
 - 3.18.1 Send to Back.....38
 - 3.18.2 Bring to Front.....38
 - 3.18.3 Group.....38
 - 3.18.4 Ungroup.....38
- 3.19 Colour Palette.....39**
- 4. GROUP SYMBOLICS.....40**
 - 4.1 Creating a Symbolic for an Intersection.....40
- 5. PIXMAP EDITOR44**
 - 5.1 Mouse Buttons.....44**
 - 5.2 File Menu44**
 - 5.2.1 New45
 - 5.2.2 Open.....45
 - 5.2.3 Save.....45
 - 5.2.4 Save As45
 - 5.2.5 Delete45
 - 5.2.6 Exit.....45
 - 5.3 Edit Menu45**
 - 5.3.1 Cut.....45
 - 5.3.2 Copy45
 - 5.3.3 Paste45
 - 5.3.4 Clear45
 - 5.3.5 Select All.....46
 - 5.4 View Menu.....46**
 - 5.4.1 Fatbit Size46
 - 5.5 Colours Menu.....46**
 - 5.6 Options Menu.....46**
 - 5.6.1 Pixmap Size.....46
 - 5.7 Window Menu46**
 - 5.7.1 New Window46
 - 5.7.2 Show Clipboard.....46
 - 5.7.3 Capture Screen Image46
 - 5.8 Tool Bar47**
 - 5.8.1 Selection Pointer47
 - 5.8.2 Pencil.....47
 - 5.8.3 Draw Line47
 - 5.8.4 Colour Fill.....47
 - 5.8.5 Draw Wireframe Rectangle.....47
 - 5.8.6 Draw Filled Rectangle.....47
 - 5.8.7 Draw Wireframe Ellipse48
 - 5.8.8 Draw Filled Ellipse48
 - 5.8.9 Shift Up.....48
 - 5.8.10 Shift Down48
 - 5.8.11 Shift Left48
 - 5.8.12 Shift Right48

- 5.8.13 Flip Horizontally48
- 5.8.14 Flip Vertically.....48
- 5.8.15 Rotate Clockwise 90 degrees49
- 6. USING MAP LAYERS.....50**
 - 6.1 Layer Identification50**
 - 6.2 Defining Layers for Objects.....51**
 - 6.3 Displaying Map Layers52**
- 7. MAP WINDOW INFORMATION BOXES55**
 - 7.1 INTERSECTION.....55**
 - 7.2 PELICAN55**
 - 7.3 COUNT DETECTOR.....56**
 - 7.4 QUEUE DETECTOR.....56**
 - 7.5 CAR PARK56**
 - 7.6 CAR PARK SIGN.....57**
 - 7.7 SPECIAL FACILITY.....58**
 - 7.8 DIVERSION SIGN59**
 - 7.9 POLLUTION MONITORING SENSOR59**
 - 7.10 PLAN60**
 - 7.11 STAGE.....60**
 - 7.12 NODE.....60**
 - 7.13 LINK CONGESTION61**
 - 7.14 LINK GREEN61**
 - 7.15 LINK QUEUE.....62**
 - 7.16 LINK STATUS.....62**
 - 7.17 REGION.....63**
 - 7.18 SCOOT DETECTOR.....63**

LIST OF FIGURES

FIGURE 1 – TOP LEVEL UTC MENU	3
FIGURE 2 - MAP EDITOR WINDOW	5
FIGURE 3 - EDITOR MENU BAR	7
FIGURE 4 - WINDOWS EXPLORER	8
FIGURE 5 - FILE OPEN	9
FIGURE 6 - MAP TITLE DIALOGUE BOX	11
FIGURE 7 - SELECT MAP LAYERS	14
FIGURE 8 - CREATE LIVE UPDATE OBJECT	15
FIGURE 9 - LIVE UPDATE PIXMAPS	16
FIGURE 10 - EXAMPLE PIXMAPS WITH INFOBOXES	16
FIGURE 11 - PIE CHART SHOWING SCOOT STAGE SPLITS (STAGE 2 OMITTED)	17
FIGURE 12 - PIE CHART SHOWING UTC STAGES	18
FIGURE 13 - EXAMPLE GROUP SYMBOLICS	19
FIGURE 14 - CHANGE SCN	19
FIGURE 15 - ATTACH MAP	20
FIGURE 16 - USER TEXT	20
FIGURE 17 - FONT OPTIONS	22
FIGURE 18 - VIEW MENU	22
FIGURE 19 - VIEW MAP LAYER DIALOGUE	23
FIGURE 20 - ZOOM MENU	24
FIGURE 21 - OPTIONS MENU	25
FIGURE 22 - GRID OPTIONS	26
FIGURE 23 - NAME MAP LAYER	27
FIGURE 24 - PREFERENCES	27
FIGURE 25 - BEZIER CURVES	31
FIGURE 26 - QUADRANTS	32
FIGURE 27 - CIRCLE ARCS	32
FIGURE 28 - ELLIPSES	33
FIGURE 29 - RECTANGLES	33
FIGURE 30 - ROUNDED RECTANGLES	33
FIGURE 31 - ARROW LINE TERMINATIONS	36
FIGURE 32 - ROTATE TEXT DIALOGUE BOX	36
FIGURE 33 - EXAMPLE OF ROTATED TEXT	36
FIGURE 34 - EXAMPLE OF SEND TO BACK	38
FIGURE 35 - GROUPING OBJECTS	39
FIGURE 36 - EXAMPLE OF MANIPULATING A GROUP	39
FIGURE 37 - COLOUR PALETTE	39
FIGURE 38 - GROUP SYMBOLIC SCN DIALOGUE	41
FIGURE 39 - EDIT SYMBOLICS DIALOGUE	41
FIGURE 40 - DRAWING STAGE A	42
FIGURE 41 - GREEN WAVE AND FAULTY SYMBOLICS	43
FIGURE 42 - PIXMAP EDITOR	44
FIGURE 43 - NAMING LAYERS IN THE MAP EDITOR	51
FIGURE 44 - SELECT MAP LAYER IN EDITOR	52
FIGURE 45 - SELECTING LAYERS FOR VIEWING IN THE MAP DISPLAY	52
FIGURE 46 - ALL LAYERS VISIBLE	53
FIGURE 47 - BASE MAP AND INTERSECTION LAYERS	53
FIGURE 48 - BASE MAP AND PELICAN LAYERS	54
FIGURE 49 - BASE MAP, PELICAN AND NODE LAYERS	54
FIGURE 50 - ALL LAYERS VISIBLE EXCEPT BASE MAP	54

1. INTRODUCTION

1.1 Purpose

This document describes the MMI Map Editor and Display for the STC Urban Traffic Control system (UTC), hereafter referred to as the System.

The document is written for day-to-day users of the System.

1.2 Scope

The document is limited to STC UTC Systems with the standard MMI operator interface.

It is recommended that users of this document should have been on a UTC System Operator training course, covering the basic system operation and the Map Editor and Display Facilities.

1.3 Related documents

Note: In the references below, the characters 'xxx' substitute for the 3 digit number which uniquely identifies a particular UTC System i.e. the customer variant for these documents.

1.3.1 Parent Documents

- | | | |
|----------|------------------|--|
| 1.3.1(a) | 666/UH/16940/000 | System Requirement Specification for an STC UTC System |
| 1.3.1(b) | 666/UH/16940/xxx | Customer Requirements Specification |

1.3.2 Kindred Documents

- | | | |
|----------|------------------|--|
| 1.3.2(a) | 666/HD/16940/000 | Data Preparation Handbook for an STC UTC System |
| 1.3.2(b) | 666/HE/16940/000 | System Handbook for an STC UTC System |
| 1.3.2(c) | 666/HF/16940/000 | SCOOT User Guide |
| 1.3.2(d) | 666/HG/16940/000 | System Management Handbook for an STC UTC System |
| 1.3.2(e) | 666/HH/16940/000 | Data Preparation Guide for an STC UTC System |
| 1.3.2(f) | 666/HI/16940/000 | Data File Format Guide for an STC UTC System |
| 1.3.2(g) | 666/HD/16067/000 | User Handbook for the C-TERM Terminal Emulator |
| 1.3.2(h) | 666/HP/16940/000 | Plan Preparation Handbook for an STC UTC System |
| 1.3.2(i) | 666/HT/16940/000 | Timetable Preparation Handbook for an STC UTC System |

1.3.3 Reference Documents

- | | | |
|----------|------------------|-------------------|
| 1.3.3(a) | 666/KE/16066/000 | Glossary of terms |
|----------|------------------|-------------------|

1.4 Definitions

For all definitions and abbreviations used in this and related UTC documentation see reference 1.3.3(a).

1.5 Issue state and amendment

Issue 01.00	First Issue
Issues 02.00 to 13.00	Not issued
Issue 14.00	Updated to reflect V14 software
Issue 15.00	Updated to reflect V15 software
Issue 16.00	Not issued
Issue 17.00	Updated to reflect V17 software
Issues 18 to 20	Not issued
Issue 21	Updated to reflect V21 software
Issue 22	Not issued
Issue 23	Updated to reflect version 23 of the UTC System
Issues 24 to 27	Not issued
Issue 28	Updated to reflect version 28 of the UTC System

2. MAP EDITOR AND MAP DISPLAY

2.1 Introduction

The Map Editor allows a user to import files in a variety of formats, edit the static background, add Live Update Symbols or Group Symbolics to the maps in a number of layers and save new composite maps for use by the Map Display facility.

Throughout this handbook the term "map" is used to mean a file consisting of a static background and, optionally, live update symbols, which has been saved in an internal format and is available for use by the Map Display.

The facilities are accessed from the MAPS option of the top-level UTC menu, as shown in Figure 1.



Figure 1 – Top Level UTC Menu

2.2 Conventions

Throughout this handbook the following terms are used:

- MB1 - "Mouse Button 1". The main button as set up on your mouse. For normal configurations this is the left mouse button.
- MB3 - "Mouse Button 3". The secondary button as set up on your mouse. For normal configurations this is the right mouse button for a three-button and a two-button mouse. This button is normally used to cancel an operation.

3. MAP EDITOR

3.1 Overview

The Map Editor is an application for creating maps for use by the Map Display application. A map typically illustrates a part of the UTC network and displays the current status of the equipment controlling this part of the network. The composition of a map, though, is entirely at the user's discretion.

A map is made up of entities. These are the graphical objects that are displayed on the map. The simplest entities are lines, rectangles, ellipses, polygons, text etc. and these can be used to draw the static background for a map and live update symbolic data.

There are two types of entities that allow UTC status information to be shown on the map - live update symbols and group symbolics. Live update symbols are associated with UTC equipment and typically include an information box (Infobox), which displays the current status of the equipment. Live update symbols also include facilities to allow maps to be linked together such that clicking on an area of the screen loads and displays the linked map. Group Symbolics allow the user to graphically represent the current stage or state of an equipment. Group symbolics are generally used to draw green and red arrows on the map to represent each stage of a junction, but other equipment is supported.

A map may include one or more other maps as background maps. Entities on background maps cannot be modified within maps in which they are included. Any map created by the Map Editor may be used as a background map.

The Map Editor can import AutoCAD DXF drawings and Ordnance Survey NTF maps.

The Map Editor is laid out so that the most commonly used tools are available through the icon buttons on the left of the drawing area. To see what a button does move the pointer to the button and press the left-hand mouse button (MB1). A short description of its function is displayed on the line at the bottom of the window. Additional help for each of the tools is available through this help facility.

A palette of colours is available below the drawing area. The top row is used to select the line drawing colour and the bottom row for the fill colour. The currently selected colour for each is shown with a black border around it. These colours can be modified or additional colours added. The current colours are also shown in a rectangle drawn in the bottom left of the Map Editor window. This rectangle also shows other selected attributes - such as line widths, line styles and fill patterns.

3.2 Screen Layout

The screen layout is shown in Figure 2. This consists of the following components:

- Drawing area
- Title bar
- Menu bar

- Tool Box
- Colour Palette
- Grid (optional)
- Horizontal / Vertical Scroll Bars
- Status Line

These components are described below.

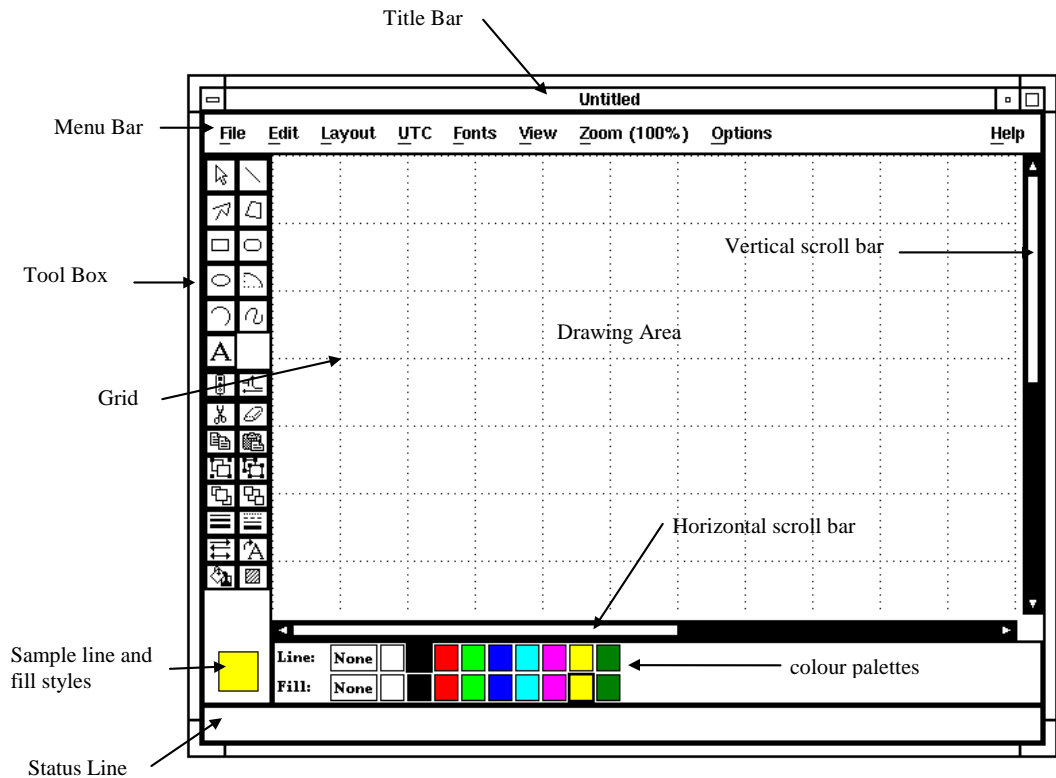


Figure 2 - Map Editor window

3.2.1 Drawing area

The main area of the Editor window is used for editing or drawing.

3.2.2 Title bar

The Title Bar shows the name of the currently loaded map and also can be used to move the position of the Editor window on the screen.

3.2.3 Menu bar

The Menu Bar contains pull-down menus with additional commands. Detailed descriptions of the commands are given in sections 3.5 to 3.12 of this handbook.

3.2.4 Tool Box

The Tool Box gives quick access to the most common operations in the Map Editor. These are described in sections 3.14 to 3.18.

3.2.5 Colour Palette

An on-screen palette is provided for selecting Outline and Fill colours. The palette is described in section 3.19.

3.2.6 Grid (optional)

The grid is a drawing aid that can be customised as described in sections 3.12.3 and 3.12.4.

3.2.7 Horizontal / Vertical Scroll Bars

The horizontal and vertical scroll bars allow panning of the current viewing window. Panning is particularly useful when a Zoom view is used or when the Editor window is not maximised.

3.2.8 Status Line

At the bottom of the Map Editor Window is a box in which a single line of text is displayed. This is context-sensitive help that may either display what the Map Editor is currently doing (if it is busy) or what the user may do. When the user selects a drawing tool a short description of how to proceed is displayed in this line.

3.3 Pixmap Editor

The Map Editor includes a separate Pixmap Editor. This can be used to modify existing Pixmaps or to create new ones. The new or modified Pixmaps may be used as fill patterns within the Map Editor or as live update symbols. It is recommended that the Pixmap editor be used before the Map Editor when creating pictures in order that a library of Pixmap symbols is available when creating maps. This editor is described in more detail in Section 5.

Main Menu Bar

The menu bar as shown in Figure 3 contains a number of pull-down options from which the various facilities of the Map Editor can be requested.

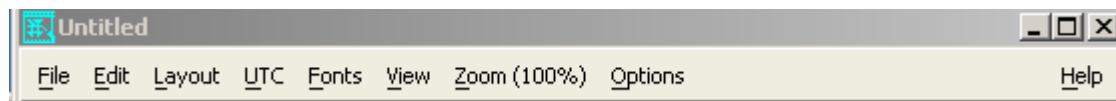


Figure 3 - Editor Menu Bar

The File menu contains options for opening and saving a map, importing, deleting maps and for exiting Map Editor.

The Edit menu contains options for modifying the loaded map in various ways. The most commonly used options in this menu are also available from icon buttons to the left of the drawing area. Many of these options require the user to have pre-selected the entities to work on.

The Layout menu contains options for inserting special types of entities on a map such as background maps and bitmaps. It also includes additional options for modifying the map such as changing the map size, grouping and ungrouping objects and changing which map layers entities are stored on.

The UTC menu contains options specific to creating and modifying UTC entities, either live update or group symbolics.

The Fonts menu contains options for changing the attributes of the font used to display text, i.e. the font family (Times, Courier, etc.), bold, italic and point size.

The View menu contains options for modifying how the map is displayed. This menu includes options to change which map layers are displayed and to turn the snap grid on or off.

The Zoom menu contains options for changing the zoom factor. The current zoom factor is displayed on the pull-down menu label.

The Options menu allows the user to change various Map Editor options. These include toggling snap to grid on and off, changing the grid size and saving the Map Editor size and position.

The Help menu provides various levels of help to the user.

3.4 Copying Files from a PC to a UTC System Folder

Windows Explorer may be used to transfer files from a PC to a folder in the UTC System, either Alpha based or PC SCOOT.

After starting Windows Explorer the host name or IP address of the UTC computer should be entered in the address box of Windows Explorer and the Enter key pressed. After a short delay a window, similar to the shown in Figure 4 should appear. This window shows all the shared folders of the UTC System.

If another copy of Windows Explorer is used to locate the file(s) which are to be transferred to the UTC System, drag and drop can be used to transfer the files from the PC to the UTC System.

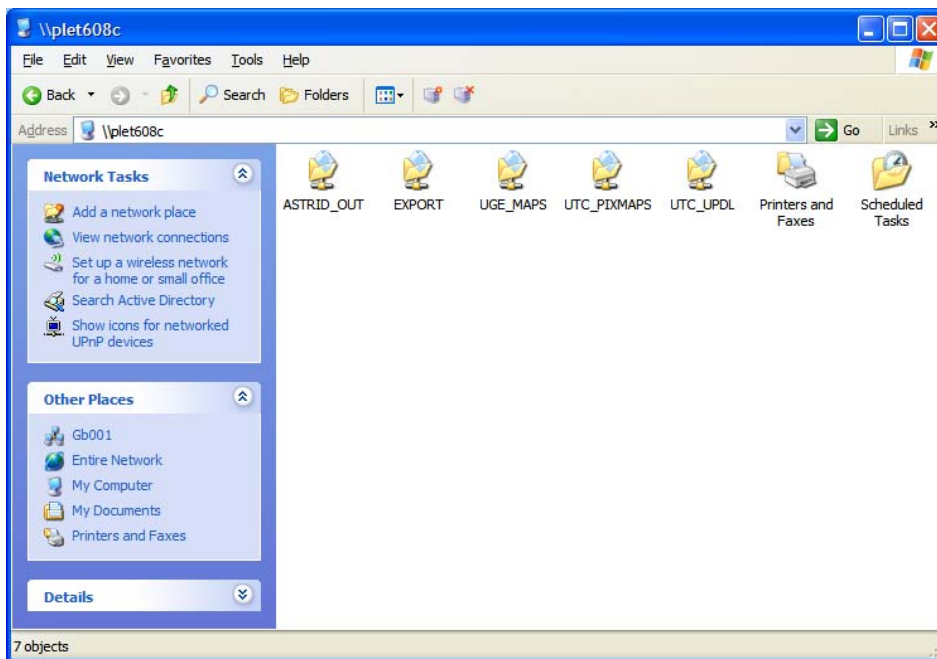


Figure 4 - Windows Explorer

Files created in external formats (DXF or NTF) can be transferred to the UTC System from a PC for use as background maps and should be transferred to the UGE_MAPS folder.

The same procedure as above can be used for importing bitmap files which should be copied to the UTC_PIXMAPS folder.

3.5 File Menu

The File Menu contains the options described below.

3.5.1 New

Select this option to create a new blank map. The currently loaded map is removed; if it has unsaved changes a dialogue box appears asking if you want to save the changes.

3.5.2 Open

Select this option to edit a map that has been previously created within Map Editor. The dialogue box (see example in 5) includes a list of available maps. Each entry in the list contains the map name followed by the title in brackets (if the map has a title). Click on one of the maps and click OK to load the map or, alternatively, double-click the map.

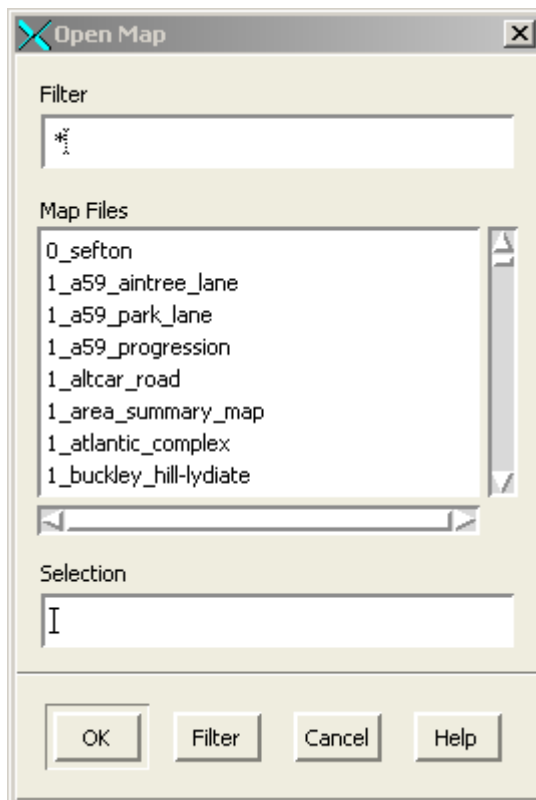


Figure 5 - File Open

By default all maps are displayed in the file list. To display a subset of the maps you can enter a pattern string in the filter field. Only maps matching the pattern string are then displayed in the file list. The following wildcard characters may be used in the pattern string.

- "*" matches one or more characters
- "%" matches one character

If another user is editing the map which you have chosen then an error message is displayed.

Select 'Cancel' to quit the file selection dialogue without loading a new map.

If the currently loaded map has unsaved changes a dialogue box is displayed asking if you want to save the changes.

Save

Select this option to save the currently loaded map back to disk. The map is saved with its original map name. It is recommended that you save the map you are working on at regular intervals to ensure that no work is lost in the event of a failure in the UTC system, X server, or program.

If the map is new and does not have a name then the Save Map dialogue is displayed and you should type in the name for the new map. The procedure detailed in section 0 should then be followed. Save As

Select this option to save the currently loaded map back to disk with a new name.

A Save Map File Selection dialogue box appears which includes a list of existing maps. By default all maps are displayed. To display a subset of the maps you can enter a pattern string in the filter field. Only maps matching the pattern string are then displayed in the file list. The following wildcard characters may be used in the pattern string.

- "*" matches one or more characters
- "%" matches one character

To save the currently loaded map using the name of an existing map, click the map and then the OK button. You then have to confirm you wish to overwrite the existing file with this name. To save the map with a name which does not already exist type the name in the selection field. The name that you type in must contain only alphabetic or numeric characters or '-', '_', '\$' (note, it must not contain spaces) and should not be more than 27 characters long. (A free form text description for a map can be entered as the title if the map name is not sufficient).

If another user is editing the map that you have chosen then an error message is displayed and you should give the map another name.

Select 'Cancel' to quit the file selection dialogue without loading a map.

3.5.3 Import

Select this option to import an Ordnance Survey NTF file, an AutoCAD DXF file.

A new map is created from the imported file. If the currently loaded map has unsaved changes then a query dialogue is displayed asking if the user wishes to save these changes.

A file selection dialogue is displayed listing the files in the import directory. To import a file double-click one of the files displayed.

Files in NTF format retain their original features e.g. Parish boundaries, street markings etc. The edit function allows these features to be modified or deleted in whole or in part. See section 3.6.2 for more details.

Note: External files must be stored in the import directory (UGE_MAPS) before they can be used. It is not possible to instigate a transfer from a PC to the UTC System from within the Map Editor.

3.5.4 Delete

Select this option to delete a map. A file selection dialogue box is displayed listing the maps that are available for deletion. Only maps that have been imported/created, edited and saved within the Map Editor are available for deletion. It is not possible to delete NTF or DXF files. Select a map from the list of files and click 'Delete'.

3.5.5 Exit

Select this option to exit Map Editor. If the currently loaded map has unsaved changes a query dialogue is displayed asking you if you want to save the changes.

The Map Editor will not exit if the Pixmap Editor application is still running. A warning message is displayed if this is the case.

3.6 Edit Menu

The edit menu contains the following options for modifying the currently loaded map.

The use of the first seven of these options provides the same functionality as items on the tool bar. See sections 3.17 and 3.18 for more details.

3.6.1 Change Title

This option allows the user to change the title of the currently loaded map. A dialogue box shows the current title of the map. You can modify or enter a new title. Click on OK or APPLY to implement the change. The title is displayed on the window title bar. If no title has been defined then the title is the same as the map name. This option may be used where it is required to provide a description of a map that cannot be contained within the map naming convention.

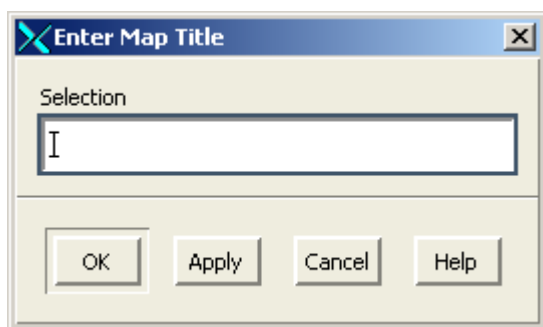


Figure 6 - Map Title Dialogue Box

3.6.2 Select Feature

This option only has meaning when used with imported NTF maps. NTF maps give each entity on the map a feature code and include a directory giving a description for each feature code. This information is retained when an NTF map is imported into the Map Editor and this dialogue allows a user to select entities on a map based on their feature code. The dialogue displays a list of features. Only features that exist on the map are shown. Select one feature from the list and click on OK or APPLY. All entities on the map that have this feature code are selected. This allows the user to quickly remove unwanted features or change their colours and other attributes.

Clicking OK or APPLY de-selects any entities which do not have the selected feature code, but like other selection operations holding down the SHIFT key suppresses this behaviour.

3.6.3 Select Map

This option allows the user to select the current map as a single entity and re-size it or change the default colours.

3.6.4 Select All

This option is used to select all the selectable entities or entities of one type which are on the currently displayed map. This is done by:

- Select all selectable objects on the map. Ensure that the mouse pointer is the arrow, then click on the Select All option. All the selectable objects in the map are displayed with their handles highlighted.
- Select all entities of one type. All the basic drawing entities as described in Section 3.14 (Tool Bar - Basic Draw Icons), i.e. - Line, Polyline, Polygon, Bezier Curve, Quadrant, Circle Arc, Ellipse, Rectangle, Rounded Rectangle and Text Object - can be selectively marked and manipulated. For example, all lines can be selected and their style or colour changed in one operation. This is done by first clicking on the drawing object icon as if one were to be drawn and then clicking on the Select All option from the Edit menu. All the selectable entities of this type are then displayed with their handles highlighted.

3.7 Layout Menu

The Layout menu contains the following options:

3.7.1 Resize Map

This option allows the user to change the size of a map. This is typically used to select a single junction from a map of a sub-area or large number of junctions and then saving the resulting map under a different name.

To resize the map click on the Layout / Resize option. The mouse pointer changes to a cross that should be placed at one corner of the bounding rectangle. Click on and hold MB1 and drag the cursor to the other corner of the bounding rectangle. To maintain the correct vertical and horizontal content in the resulting map the Shift key should be pressed during the operation and only released after MB1 has been released. Clicking MB3 at any time during the operation cancels the resizing of the map.

When MB1 is released the selection is resized to fill the available map area and may be saved as a new map.

3.7.2 Insert Background Map

This option allows a user to insert a previously created map as a background. It is normally used when starting from a blank map. The background map is inserted as a single entity, i.e. it is not possible to select individual objects on the inserted map and change their appearance. The advantage of this method is that it prevents objects on the background from being selected "accidentally" whilst editing the new map. It also improves the performance of the Map Editor.

3.7.3 Insert Bitmap Image

This option allows the user to insert a bitmap image into the current map. There are three types of bitmaps supported by Map Editor. These are X Bitmap Files (.XBM), X Pixmap Files (.XPM) and MS Windows bitmap files (.BMP, .DIB). X Bitmap files are monochrome images. When an X Bitmap image is inserted on a map you can change the colour of the foreground and background pixels of the image using the fill and line colours respectively. X Pixmap and MS Windows bitmaps are multi-colour images. You cannot change the colours used by these images.

To insert an image on the map select one of the files and click on Insert. The cursor changes to a top left corner pointer. Click on the drawing area where the image is to be positioned.

You can browse through the list of bitmaps available. Select an item in the list and its image is displayed in a viewing area on the dialogue.

To replace an existing bitmap image select the entity. The Insert button label changes to 'Replace' and the bitmap that you select replaces the existing image for the selected entity. To return to 'Insert' mode deselect any image entities. (Click on any empty area of the map or double click the arrow tool).

To make MS Window bitmaps available for use by the Map Editor you must copy the bitmaps onto the TMC computer. See section 3.4 for details.

You can modify or create new X Bitmap or X Pixmap files using the Pixmap Editor. See section 5 for details.

3.7.4 Group and Ungroup

This option allows the user to select a number of entities on a map and group them together, or to ungroup previously selected entities. Whilst group is enabled all the entities in the group can have their attributes changed together.

The same functionality is also available from the tool bar. See sections 3.18.3 and 3.18.4.

3.7.5 Map Layers

The option allows the user to select which map layers entities are stored on. Select one or more layers from the list and click OK or APPLY.

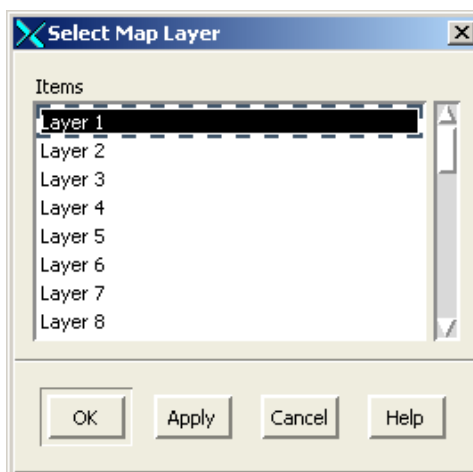


Figure 7 - Select Map Layers

A maximum of 32 map layers is available. These can be named by the user (see 3.12.5). Map Layers are a useful way of separating the information shown on a map into different categories. The user can select which layers are viewed (only entities stored on the selected layers are displayed) and therefore remove any information from the map that is not of interest.

When the dialogue is initially shown it displays the currently selected map layers. Like most editing functions it operates on the current selection. If any entities are selected it shows those map layers on which the selected entities are stored, otherwise it shows the default map layers (i.e. those on which subsequently created entities are stored). Clicking OK or APPLY updates the selection with the selected values.

Section 6 gives further details.

3.8 UTC Menu

The UTC menu options are described below:

3.8.1 Create Live Update Object

A live update object consists of the following basic symbols:

- pixmap - which can be used to select another map, display an infobox, or select a number of commands with reference to the associated SCN.
- hotzone - a rectangular user-defined area with similar properties to a pixmap
- infobox - a window with status information for the associated SCN

Some additional special symbols are also available:

- legend - to display a car park or car park sign status
- line / polyline / bezier - to display link green and link congestion
- scale - to display link queue

The information displayed with these objects is described in more detail in section 5.

To create a live update object, select the dialogue box from the UTC menu or the Tool Box, as shown in Figure 8 .

This option allows a user to create a live update object, define certain characteristics of that object and add it to the currently displayed map. The user is asked to select a live update symbol from a list of available types.

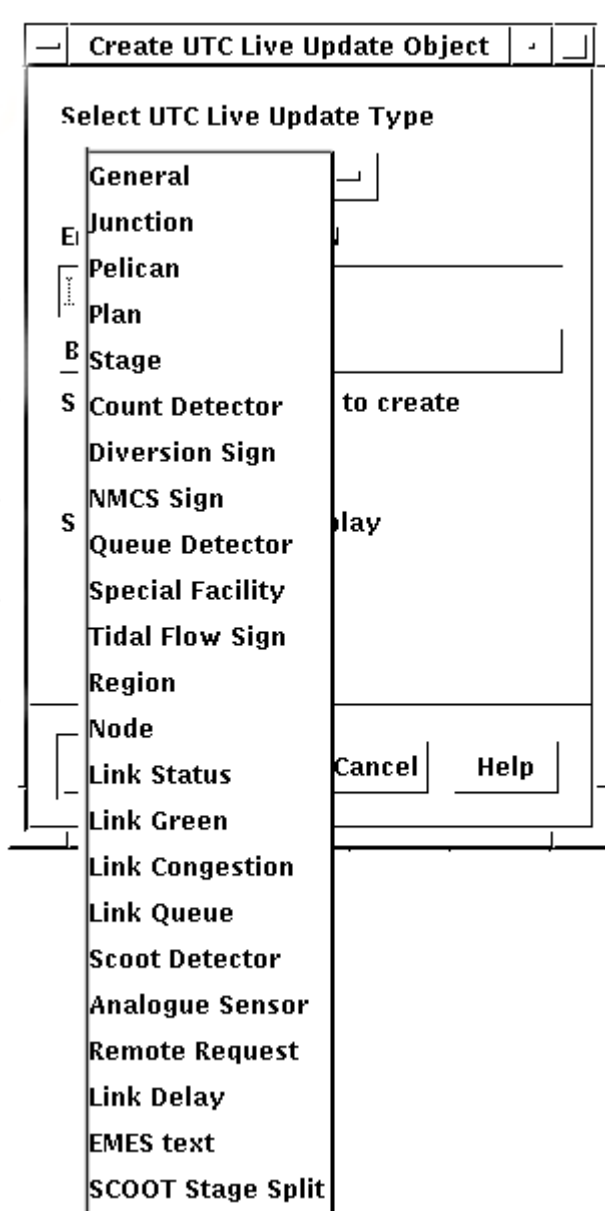


Figure 8 - Create Live Update Object

Enter the Object type (from the drop down list), SCN, symbol type and symbol representation (from the library of available pixmaps).

The SCN to be assigned to the live update symbol is entered through a dialogue box. The SCN must be valid and of the appropriate equipment type. The "General" object does not require an SCN and can be used for defining links to other maps.

The user can select the type of object to create from one of pixmap, hotzone or infobox and the special objects legend, line / polyline / bezier and scale.

Symbol Types:

(1) pixmap - choosing this option creates a pixmap with an associated hotzone and information box. The default pixmap for the selected object type is displayed in the dialogue box. Alternatively, the user can click on the symbol to display a library of pixmap symbols which are used with live update objects and select one of these instead. Caution - this could lead to confusion if, for example, a car park symbol is selected and assigned to a junction SCN.

For certain object types there is no associated pixmap, but polylines or other drawing objects are used.

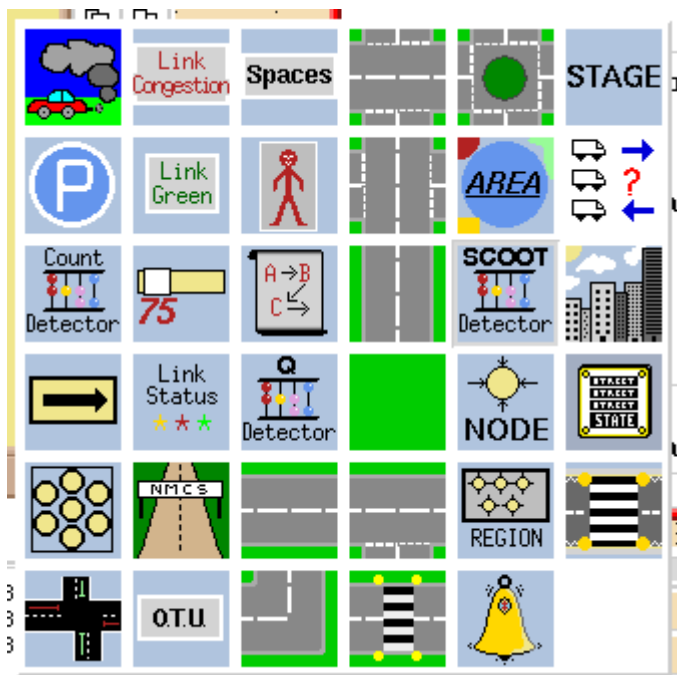


Figure 9 - Live Update Pixmaps

The pixmap symbols displayed here can be edited using the Pixmap Editor (see section 5).

(2) hotzone - a hotzone is automatically created with a pixmap. One can also be created without an associated symbol. Hotzones define an area of the map used to move to another map when the user double-clicks MB1.

(3) infobox - an infobox is automatically created with a pixmap or a hotzone. The information contained in each infobox depends on the equipment type and is detailed in section 7. If the infobox is associated with a pixmap it can be selected independently of the pixmap and re-positioned on the map for clarity. Example infoboxes with associated pixmaps are shown in Figure 10.

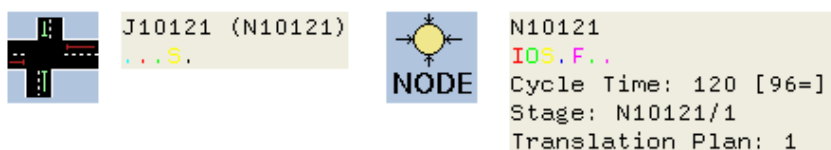


Figure 10 - Example Pixmaps with Infoboxes

Special Objects:

(4) legend - an object that can be created for a car park or car park sign. The information contained in each legend is a text string with the status of the associated equipment. E.g. SPACES or ALMOST FULL

(5) line / polyline / bezier - objects that change colour to represent a link green or link congestion. See sections 7.13 and 7.14 for further details.

(6) scale - a rectangular object with a green background and filled with a red foreground proportional to the length of queue on a link. This is used exclusively for the Link Queue symbol. See section 7.15 for further details.

(7) pie chart - This facility adds two different types of pie chart which may be shown on a map display.

The first type of pie chart shows SCOOT stage splits. The size of each segment of the pie chart represents the split as a proportion of the cycle time. The position of each segment shows the relative offset (useful when viewing multiple nodes running at the same cycle time).

To insert this type of pie chart, in Map Editor.

- 1) Select 'Create Live Update Object'.
- 2) Choose 'SCOOT Stage Split' as the UTC Live Update Type.
- 3) Select a valid SCOOT node or SCOOT stage SCN.
- 4) Choose 'piechart' as the type of object to create.
- 5) Click OK or Apply and draw the bounding box for pie chart circle on the map.

If a SCOOT node is selected then the segment for the named stage of the node will be drawn in green. The other stages on the SCOOT node will be drawn in other (possibly repeating) colours. If SCOOT stage is selected the split for the specified SCOOT stage will be displayed in green instead.

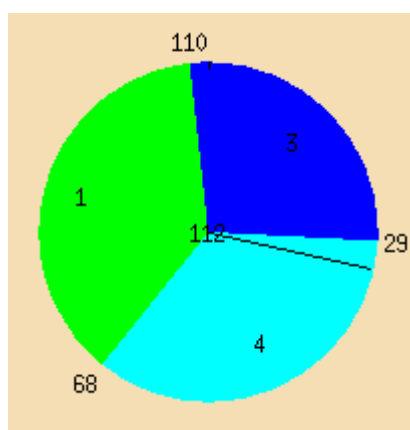


Figure 11 - Pie Chart Showing SCOOT Stage Splits (Stage 2 omitted)

The pie chart includes a “second hand” to show the current position in the cycle.

The second pie chart shows the UTC stage green replies for a junction for the last cycle. The pie chart is incrementally updated every second with the current stage replies. In this pie chart, stages representing main road greens are displayed in

green and other stages are displayed in other colours. Intergreens are displayed in yellow.

The program decides which stages are main road greens as follows. If the main road greens field of the junction data form in data-prep is not empty then it uses that data. Otherwise, if the junction is a SCOOT node it uses the stage number associated with the named stage. Otherwise, if the junction is not a SCOOT stage then stage A is assumed to be the main stage.

To put a stage green pie chart on a map, repeat the steps as described above with the following changes.

- 1) Select 'Create Live Update Object'.
- 2) Choose 'Stage' as the UTC Live Update Type.
- 3) Enter a valid junction SCN.
- 4) Choose 'piechart' as the type of object to create.
- 5) Click OK or Apply and draw the bounding box for pie chart circle on the map.

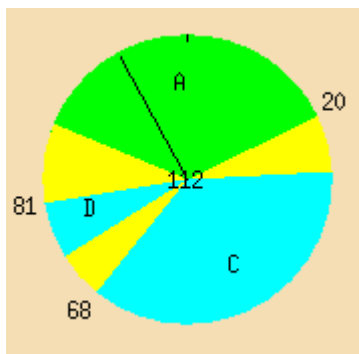


Figure 12 - Pie Chart showing UTC Stages

3.8.2 Create Group Symbolics

This enables the user to draw a collection of basic drawing items to represent the stages of a junction or pelican controller, including the green-wave and faulty conditions. Figure 13 shows examples of the representation of two stages as Group Symbolics.

See section 4 for detailed information on creating Group Symbolics.

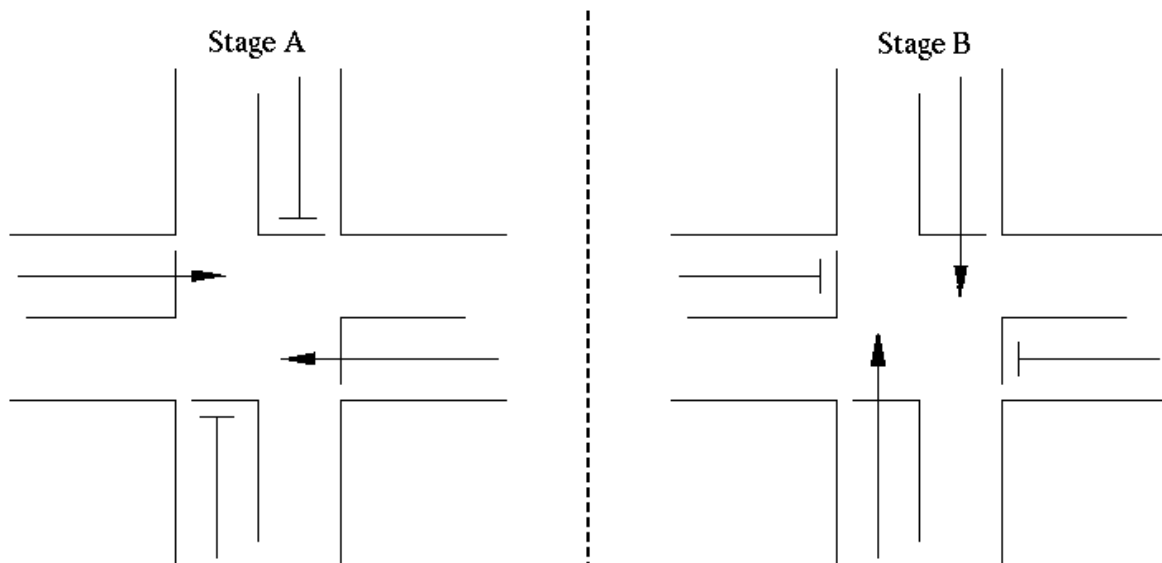


Figure 13 - Example Group Symbolics

3.8.3 Change SCN

This option enables the user to change the SCN of the selected live update object. See Figure 14. To modify the existing SCN overwrite the SCN in the box and confirm by clicking on either the OK or Apply button.

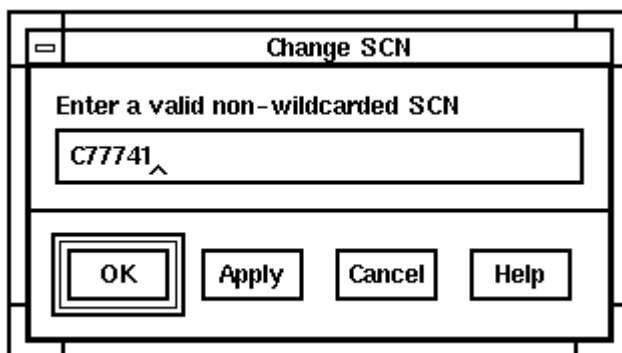


Figure 14 - Change SCN

3.8.4 Attach Map

This option enables the user to attach a map file to a hotzone. A dialogue box with a list of available maps is displayed. Choose a file from this list. Using this option it is possible to build up a hierarchy of maps for use in the Map Display facility. See Figure 15.

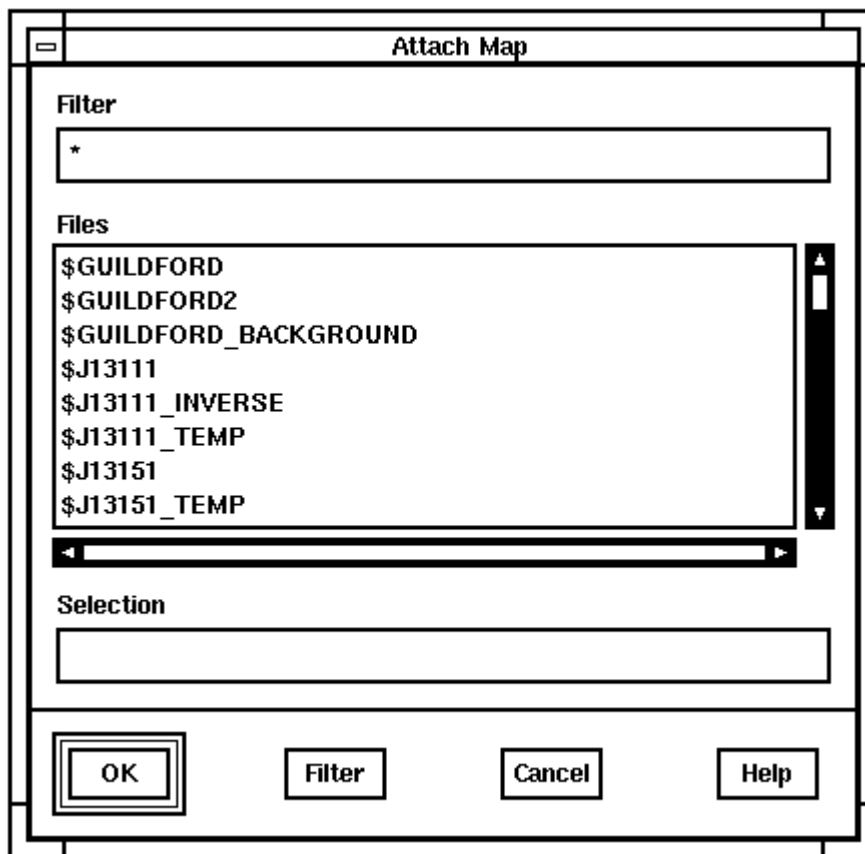


Figure 15 - Attach Map

3.8.5 User Text

This option allows the user to add descriptive text to the details contained in the information box created with a live update symbol (see section 3.8.1). See example in Figure 16.

Enter the text to be displayed. If more than one line of text is required, press <Enter> to start a new line of text. Confirm the text by clicking on the OK or Apply button.

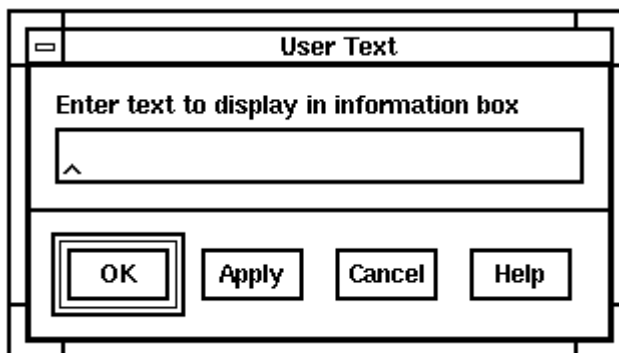


Figure 16 - User Text

3.8.6 Attach Command

This option allows a command to be attached to a live update symbol.

Select a command from the drop down list or type a command directly into the box. If a command is chosen from the list delete its description and type in the actual command wanted.

Confirm the command by clicking on the OK or Apply button.

3.8.7 Display Information Box

This option only applies to live update symbols which have a pixmap (or hotzone) associated with them. The infobox is displayed when the user either selects this menu option or double clicks on the live update pixmap or hotzone.

3.8.8 Highlight When Faulty

This option must be selected in conjunction with a live update symbol. The symbol is highlighted (in the Map Display facility) in different colours according to the level of the current fault, as follows:

- Red - major fault
- Magenta - minor fault
- Yellow - information only.

3.8.9 Highlight When Active

This option toggles on/off and must be selected in conjunction with a live update symbol. The symbol is edged green in the Map Display facility when active, for example when a Remote Request reply bit is sent.

3.8.10 Blinking On/Off

This option toggles on/off and must be selected in conjunction with a live update symbol. The symbol starts to blink when selected and continues until deselected.

3.9 Fonts Menu

This option allows to user to change the font on the currently selected text. The style can be chosen from a list of font names. Text size is chosen from a pre-defined list of point sizes or alternatively from a free-format dialogue box. An additional option permits the text to be rotated in increments of 1 degree. Figure 17 displays the Font options menu.

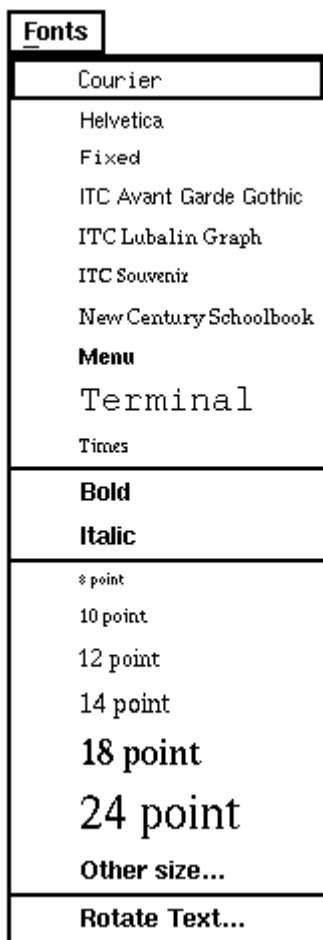


Figure 17 - Font options

3.10 View Menu

The View menu is displayed in Figure 18.

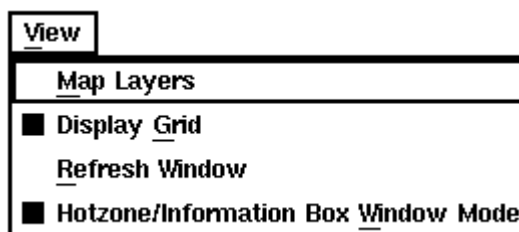


Figure 18 - View menu

3.10.1 Map Layers

This option allows the user to select which map layers are displayed. One or more map layers may be selected from the list of layers displayed. Click the OK or APPLY button when you have made your selection. The dialogue only shows map layers that are used on the map in the list. By default all entities are stored on layer 1 (normally called DEFAULT). The View Map Layer dialogue box is shown in Figure 19.

You can change the map layers on which entities are stored using the Map Layer Dialogue and you can name the map layers using the Name Map Dialogue (see list of additional topics).

See section 6- USING MAP LAYERS for a description of map layers.

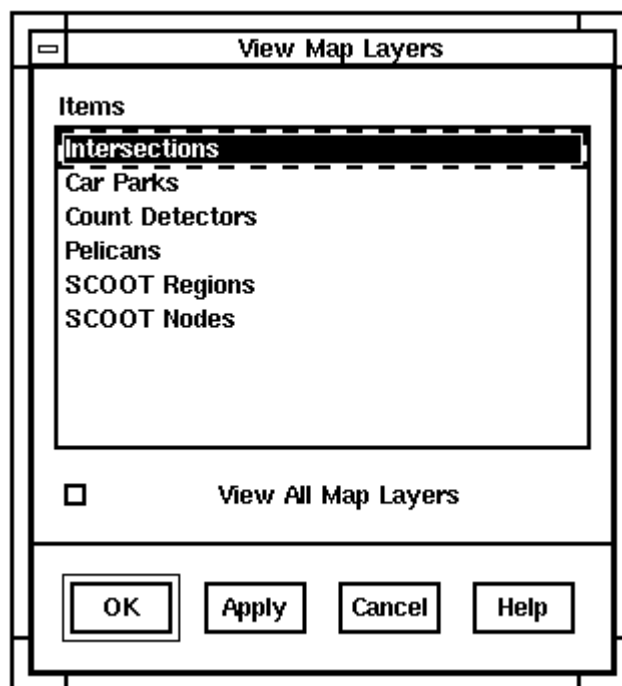


Figure 19 - View Map Layer dialogue

3.10.2 Display Grid

This option allows the user to toggle the display of the grid. The grid options are described in section 3.12.4.

3.10.3 Refresh Window

This re-draws the contents of the Map Editor window.

3.10.4 Hotzone Information Box Window Mode

This option provides a pseudo-simulation of the Map Display functions. When the cursor is moved over a hotzone it changes from an arrow-head to a pointing hand. When this mode is selected the mouse buttons operate as follows when used with a Live Update Symbol:

(1) Pixmap, Hotzone

MB1 has no effect.

Note: In order to select the symbol in this mode it is necessary to draw a box around the symbol by dragging the mouse with MB1 depressed.

Double clicking on MB1 calls up the attached map, if present, or alternatively toggles the display of the infobox.

MB3 displays a menu of commands that are appropriate to the equipment type if there is an SCN attached to the pixmap.

(2) Infobox

The mouse buttons have no effect in this mode.

3.11 Zoom Menu

The Zoom menu is displayed in Figure 20.

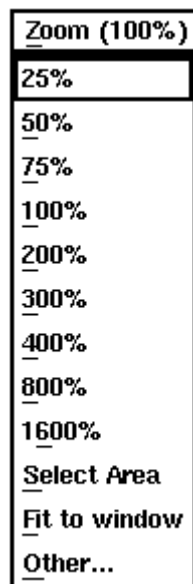


Figure 20 - Zoom menu

3.11.1 25% - 1600%

Zoom commands magnify or shrink the map area for better editing control. To return to no-Zoom select the 100% option. The Zoom-out (shrink) factors (25% to 50%) are useful for seeing the entire map on the screen. The Zoom-in (magnify) factors (200% to 1600%) are useful for editing fine detail.

3.11.2 Select Area

The Select Area option is used to select the exact area to be displayed in the Map Editor window. Click and hold MB1 on one corner of the bounding rectangle and then drag the mouse pointer to the opposite corner. On releasing MB1 the selected area is magnified.

3.11.3 Fit to Window

The map is enlarged or reduced so that it is totally visible in the Editor window.

3.11.4 Other

This option sets the resolution at which the map is displayed. Enter a zoom factor between 25 and 1600%. 100% is the normal size. Values greater than 100% zoom in showing greater amounts of detail. Click on OK or APPLY to display the map at the new resolution.

3.12 Options Menu

The Options menu is displayed in Figure 21.

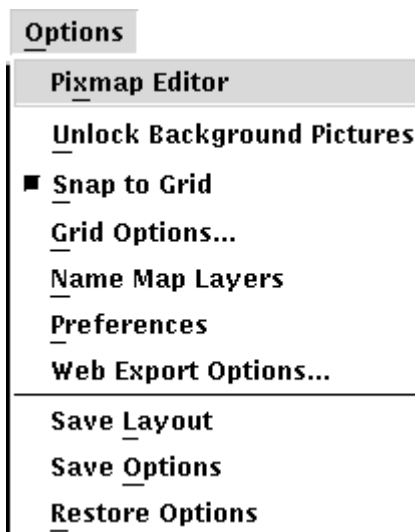


Figure 21 - Options menu

3.12.1 Pixmap Editor

This option runs the Pixmap Editor application. The Pixmap Editor allows you to create your own X Bitmaps or Pixmaps or modify existing ones. You can then insert these on a map either as an image or as a tiled fill pattern. See section 5 - PIXMAP EDITOR for more details.

3.12.2 Unlock Background Maps

A map can have one or more background maps inserted. For example, two or more DXF files may cover the area of the map being drawn and the user wishes to combine them so that the resulting background displays the correct area. The maps are first inserted by the Edit / Insert Background Map option (section 3.7.2). After setting the Unlock Background Map option the component background maps can be moved and resized. On completion, set this option OFF to avoid unintentional modifications to the background.

HINT: By changing the Zoom factor to 50% it is easier to view the whole map area for manipulating the background maps.

3.12.3 Snap to Grid

The Snap to Grid option allows the user to draw with precision by horizontally and vertically aligning objects to the nearest grid marker. This is useful for spacing or sizing objects precisely or aligning them to a given vertical or horizontal position.

3.12.4 Grid Options

This dialogue box is selected from the Options menu. The dialogue box, see Figure 22, shows the current grid settings and permits the user to modify them. The X and Y origin refer to the starting point of the X and Y grid co-ordinates

with reference to the top left corner of the drawing area. These can normally be left at their default values of 0. The width values refer to the spacing between the grid lines. For example when an object is being drawn, moved or resized the object handle nearest to the selection point snaps to the closest grid point. It is normal for the width and height of the grid to be the same value.

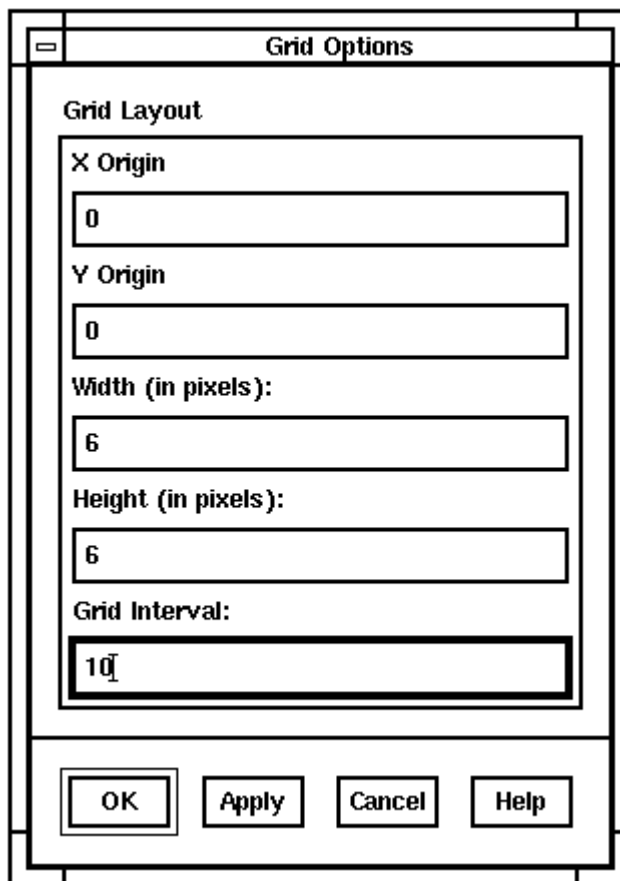


Figure 22 - Grid Options

3.12.5 Name Map Layers

This option allows the user to give names to each of the 32 map layers. The current names are displayed in the list (see Figure 23). To change a name, enter the map number (1-32) followed by its new description in the text entry field. To modify an existing description, select it from the list. The map number and description are copied to the text entry field allowing you to modify them. Click OK or APPLY after typing in each new description.

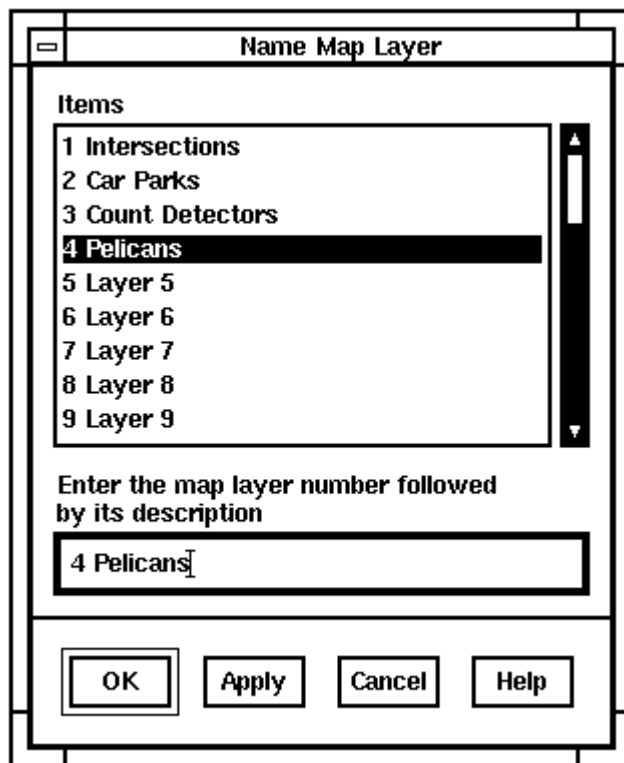


Figure 23 - Name Map Layer

It should be noted that the names you give to the map layers apply to all maps not just to the map that is currently loaded.

See Section 6 for further information.

3.12.6 Preferences

The options that can be set are shown in Figure 24.

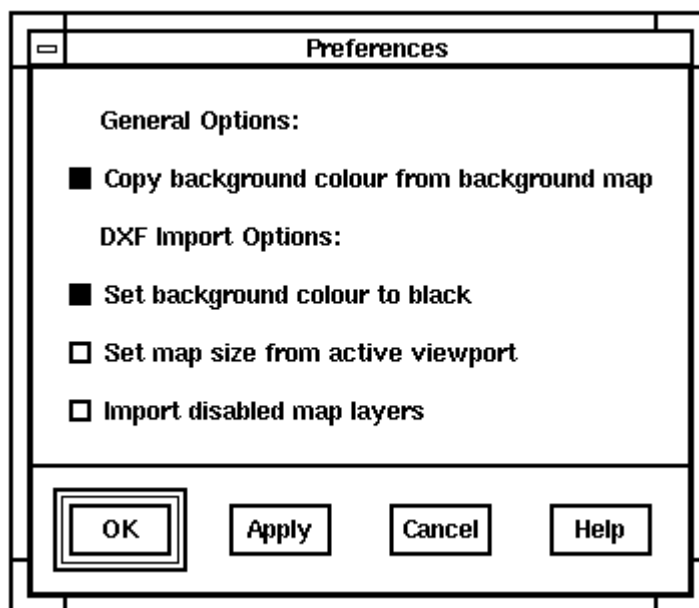


Figure 24 - Preferences

These options are:

- Copy background colour from background map - if enabled then on inserting a background map the background for the existing map is copied from the background map.
- Set Background colour to black - if enabled then DXF maps are imported onto a black background. If disabled then the default colour background is used. Note that the background colour of a map may be changed at any time by selecting the map and then clicking on one of the colour fill options.
- Set map size from active viewport - If a DXF file includes information about the active viewport (i.e. which portion of the map the user was viewing when the DXF file was created) then enabling this option causes the DXF import filter to set the map size from this viewport. The default for this option is off, which sets the size of the map so that it is just large enough to contain all the entities on the map. Enabling the option is useful for some DXF maps that contain miscellaneous entities separated by some distance from the main image.
- Import disabled map layers - if enabled this option causes the DXF import filter to load entities on disabled map layers. The default value is OFF.

3.12.7 Web Export Options

The licensable Web Export Options screen allows the user to specify the following:

- Host name or I/P address to which the maps are to be exported
- FTP User Name
- FTP Password
- FTP Path
- Width of GIF image
- Height of GIF image
- Maps to be exported.

3.12.8 Save Layout

This saves the Map Editor window size and position so that when the Editor is opened again this layout is restored.

3.12.9 Save Options

This saves the options defined in the Preferences dialogue, i.e.:

- Copy background colour from background map

In addition, for DXF import options:

- Set background colour to black
- Set map size from active viewport

- Import disabled map layers

Plus the following:

- Display grid
- Snap to Grid

3.12.10 Restore Options

Restore the options saved above.

3.13 Help Menu

The help menu provides various levels of help to the user.

Check out the list of additional topics for more information.

3.13.1 Help On Context

This option provides context sensitive help. The cursor changes to a question mark. Move the cursor to the part of the window you want help on and click MB1. To cancel, click the cursor on any part of the screen background.

3.13.2 Help On Window

This option gives an overview of the window from which it was selected and additionally provides access to more detailed levels of help on specific items. Select this option if you are new to Map Editor.

3.13.3 Help On Help

This options displays help on using the Map Editor help facility. Select this option to learn how to use the help facility.

3.13.4 Help On Version

This option gives summary information about this version of Map Editor.

3.13.5 Status Line Area

This displays a short line of descriptive text on the current selection. See section 3.2.8 for further details.

3.14 Tool Bar - Basic Draw Icons

On the left of the drawing area are positioned a number of icon buttons. These are the drawing tools. The first group is for creating entities and the second is for modifying attribute entities or performing other editing operations. To see what a tool does press MB1 on the tool button. A short description of its function is displayed in the assistance line at the bottom of the window.

Clicking once on any drawing tool (except the UTC tools) in the first group allows the user to create one instance of that entity before returning to selection mode (the default mode). Double-clicking a tool allows the user to create multiple entities.

3.14.1 SHIFT and CONTROL keys

These keys have special functions when used with the basic drawing tools. These are:

- SHIFT - used to constrain the drawing object when drawing.
- CONTROL - The drawing object is centred on the first point drawn.
- SHIFT and CONTROL - combines both functions.

Their use is described for each drawing object where appropriate.

3.14.2 Selection Mode Pointer



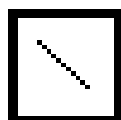
The selection pointer is used to select one or more items in the drawing area of the editor. This is the default mode and is shown as a black arrow in the drawing area.

To select a single object, click with MB1 on the selection pointer if this is not already selected, then click on to any part of the object. The object's handles are then displayed.

To select a number of objects there are two alternative methods:

1. To select a number of separate objects. Click on the first object to select it. Then hold down the Shift key and click on the other objects to be selected. All the handles on the selected objects are displayed.
2. To select objects using a selection frame. Drag the pointer across the objects. A selection frame, which is a rectangular box, appears as you drag. All the objects that lie *completely* within the selection frame are selected. Note that additional items can be selected by using the previous method.

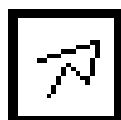
3.14.3 Create a Line



Straight lines are created by clicking on the line draw icon, moving on to the drawing area of the map, clicking and holding MB1 to define the start point, then dragging the pointer to the end point and releasing MB1. The use of the SHIFT and CONTROL keys is:

- SHIFT - the line is constrained to multiples of 45 degrees.
- CONTROL - The first point drawn becomes the centre of the line.

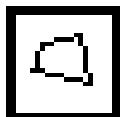
3.14.4 Create a Polyline



A polyline is an open object, consisting of a number of connected lines. Polylines are drawn by clicking on the polyline icon, moving the pointer on to the drawing area, clicking MB1 once to define the first and subsequent points and double clicking to define the end point.

- SHIFT - the current segment can only be drawn in multiples of 45 degrees.
- CONTROL - has no effect.

3.14.5 Create a Polygon



A polygon is a closed polyline. It is drawn in the same fashion to a polyline. The end point is automatically connected to the first point.

- SHIFT - the current segment can only be drawn in multiples of 45 degrees.
- CONTROL - has no effect.

3.14.6 Create a Bezier Curve



A bezier curve is defined by its start and end points and a number of intermediate control points. Click on the bezier curve icon and move the pointer into the drawing area. Click MB1 once to define the first point, click again for the end point and click for each intermediate point. The last control point is defined by a double click on MB1.

- SHIFT - the start and end points are constrained to line in multiples of 45 degrees.
- CONTROL - has no effect

Figure 25 shows two Bezier curves, the one on the right with its start, end and control points visible.

To edit a curve first select it then move the position of either of the end points or any of the control points.

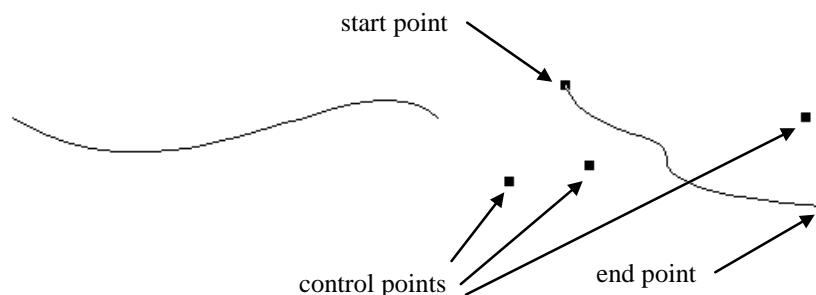
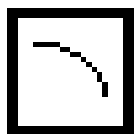


Figure 25 - Bezier curves

3.14.7 Create a Quadrant



An elliptical or circular quadrant is drawn with this tool. With the pointer in the drawing area, click on hold MB1 to draw the starting point and drag the pointer to the end point, then releasing MB1.

- SHIFT - the start and end points are constrained to line in multiples of 45 degrees.
- CONTROL - the elliptical quadrant is constrained to a circular quadrant.
- SHIFT and CONTROL - combines both functions.

Example quadrants are shown in Figure 26. The first is an unconstrained elliptical quadrant, the second a constrained circular quadrant.



Figure 26 - Quadrants

3.14.8 Create a Circle Arc



A circular arc is a segment of a circle. To draw an ellipse or circle, see 3.14.9. A segment is drawn with three defining points. Click and release MB1 for the start point. Move the pointer to the end point and click MB1 again. Then move the pointer to the third point to define the shape of the arc and click MB1. The segment is created.

- SHIFT - constrains the start and end points to lie on a line in multiples of 45 degrees.
- CONTROL - has no effect.

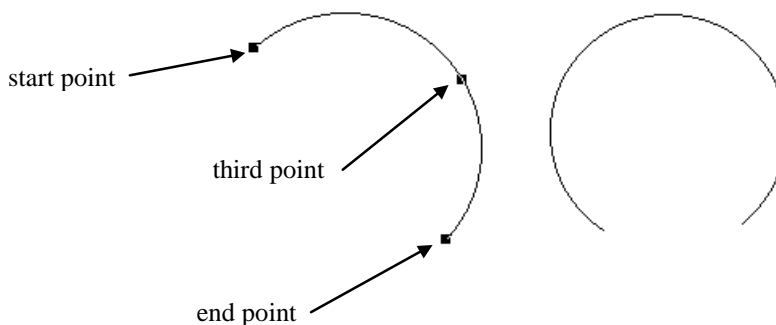
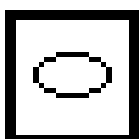


Figure 27 - Circle arcs

3.14.9 Create an Ellipse



To create an ellipse, click on the ellipse icon in the toolbox, move the pointer to the drawing area, click and hold MB1 to define the first point and drag the pointer to define the size and shape of the ellipse and then release MB1.

- SHIFT - constrains the object to be a circle or a vertical or horizontal line.
 - CONTROL - the first point becomes the centre of the ellipse.
- SHIFT and CONTROL - combines both functions.

Figure 28 displays two ellipses, the one on the right being constrained to a circle by holding down the SHIFT key.

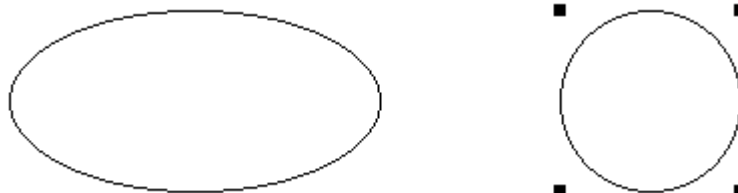
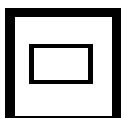


Figure 28 - Ellipses

3.14.10 Create a Rectangle



To create a rectangle, click on the rectangle icon in the toolbox, move the pointer to the drawing area, click and hold MB1 to define the first point and drag the pointer to define the size and shape of the rectangle and then release MB1.

- SHIFT - constrains the object to be either a square or a vertical or horizontal line.
- CONTROL - the first point becomes the centre of the rectangle.
- SHIFT and CONTROL - combines both functions.

Figure 29 displays two rectangles, the one on the right being constrained to a square by holding down the SHIFT key.

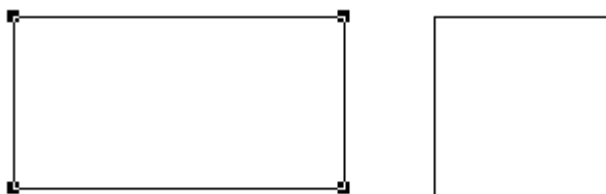
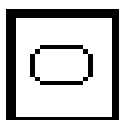


Figure 29 - Rectangles

3.14.11 Create a Rounded Rectangle



Rounded rectangles are identical to rectangles except their corners are rounded, as shown in Figure 30.

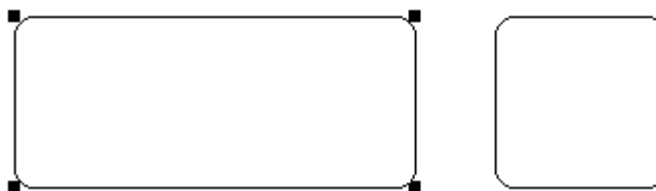
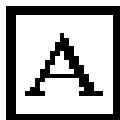


Figure 30 - Rounded rectangles

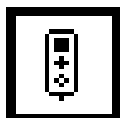
3.14.12 Create a Text Object



A text object is created by clicking on the Text icon, moving the pointer to the position in which the text is to be entered and then typing in the text. On completion, press the Enter key to complete the operation. The SHIFT key operates in the normal way for text by changing to and from upper case letters. The CONTROL key has no effect.

3.15 Tool Box - Live Update Icons

3.15.1 Create a Live Update Object



See section 3.8.1 for the creation of live update objects.

3.15.2 Create Group Symbolics



See section 4 for the creation of Group Symbolics.

3.16 Tool Box - Style Edit Icons

The second grouping of icons in the Tool Box is for modifying the characteristics of drawing objects, such as colour, line thickness and style.

3.16.1 Add a New Colour to the Palette



The colour palette (see Figure 37) displays the palettes for outline and fill colours. When this is selected the standard colour mixing dialogue window is displayed. The user can create new colours that are then added to the palette (see section 3.19).

3.16.2 Set Line Width



This dialogue allows the user to change the line width for the selected entities. The current line width is shown in the text entry field. The units are pixels (when displayed at 100%). Type in the new line width (0-100). Fractional values are allowed. Click OK or APPLY to change the line width of the selection to the new value.

Lines with the hairline width are non-scaleable and are displayed with a pixel width of 1 at all zoom factors. Non-zero widths are scaleable.

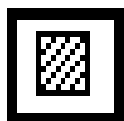
3.16.3 Set Line Style



This dialogue allows the user to change the dash length for the selected entities. The current dash length is shown in the text entry field (unless the current line style is solid or is one of the pre-defined line styles). The units are pixels. Type in the new dash length (1-100). Click OK or APPLY to change to the new the dash length.

Lines defined with the hairline thickness that is not scaleable are displayed the same at all zoom factors. To change the line to solid select the solid from the line style menu (selected from the icon button on the left of the drawing area).

3.16.4 Set Fill Pattern



This dialogue is selected from the fill pattern icon button. It allows the user to select the bitmap pattern used to fill a shape. There are three types of bitmaps supported by Map Editor. These are X Bitmap Files (.XBM), X Pixmap Files (.XPM) and MS Windows bitmap files (.BMP, .DIB). X Bitmap files are monochrome images.

When an X Bitmap image is used as a fill pattern you can change the colour of the foreground and background pixels of the pattern using the fill and line colours respectively. X Pixmap and MS Windows bitmaps are multi-colour images. If these are used to fill a shape then the fill and line colours are not used and the image is tiled as-is in the shape.

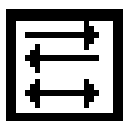
To set the fill pattern for the selected entities double-click a file in the list.

You can browse through the list of bitmaps available. Select an item in the list and its image is displayed in the viewing area on the dialogue.

To make MS Window bitmaps available for use by the Map Editor you must copy the bitmaps onto the TMC computer. See below for details.

You can modify or create new X Bitmap or X Pixmap files using the Pixmap Editor. See section 5 for details.

3.16.5 Set Arrow-Head Style



Lines, polylines and bezier curves can be terminated with or without arrow-heads. The options are none, one end, the opposite end or both ends. Examples are shown in Figure 31.

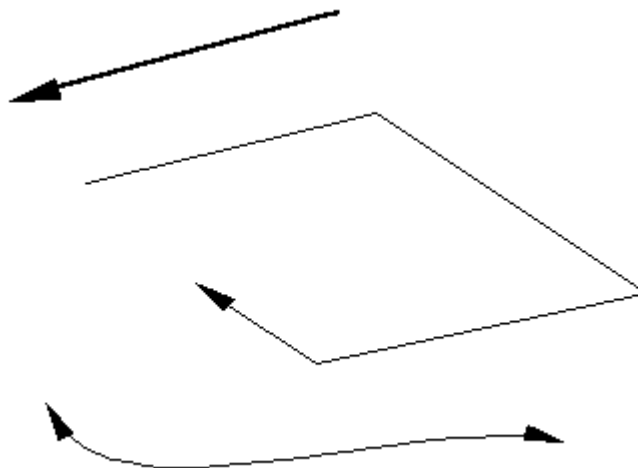


Figure 31 - Arrow line terminations

3.16.6 Rotate Text



Text can be rotated in increments of 1 degree between -180 and 179. To rotate text, first select the text object to be modified and then click on the Rotate Text icon. A dialogue box opens (Figure 32) and the angle of the rotation can be entered. Confirm by clicking on the OK or APPLY button.

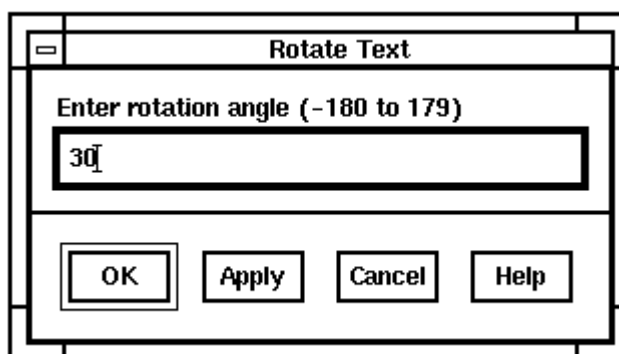


Figure 32 - Rotate Text dialog box

NOTE: The angle entered into the dialog box refers to rotation from the original horizontal orientation and is not added to a previously applied rotation.

An example of text after being rotated is shown in Figure 33.

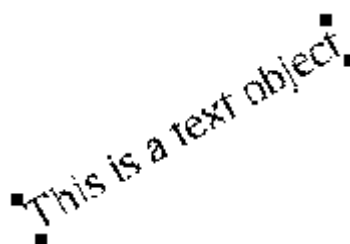


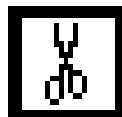
Figure 33 - Example of rotated text

3.17 Tool Box - Editing Facilities

3.17.1 The Clipboard

The clipboard is used to cut, copy and paste objects within a map and also transfer these objects between maps. The clipboard contains the most recently cut or copied object(s) until something else is cut or copied to it.

3.17.2 Cut



Cutting an object removes the object from the picture and places it on the clipboard. The object can then be replaced in this map or pasted into another map with the Paste command. Multiple objects can be cut to the clipboard. To cut an object, execute the following:

- Select the object or objects to be cut
- Click on the Cut icon or select Cut from the Edit menu. The selected object(s) is (are) removed from the map and placed in the clipboard.

3.17.3 Copy



Copying makes a copy of the object and places it on the clipboard without removing the object from the map. The copy of the object can then be pasted back into this or another map with the Paste command. Multiple objects can be copied. To copy an object:

- Select the object or objects to be copied
- Click on the Copy icon or select Copy from the Edit menu. The selected object(s) is (are) copied to the clipboard but not removed from the map.

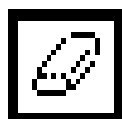
3.17.4 Paste



Pasting places a copy of the object(s) stored on the clipboard into the current map without removing the object(s) from the clipboard. In this way multiple pastes can be performed into a single or multiple maps. To paste an object execute the following actions:

- Click on the Paste icon or select Paste from the Edit menu. The contents of the clipboard are then pasted into the map. The pasted object(s) become selected whilst the previously selected objects are deselected.
- This process can be repeated to copy the object(s) on the clipboard to the same or to other maps.

3.17.5 Delete



Delete removes an object or objects from the current map. However, unlike Cut, the objects are not stored on the clipboard and cannot subsequently be recovered. The contents of the clipboard are unaffected. To delete an object execute the following actions:

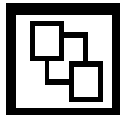
- Select the object or objects to be deleted

- Click on the Delete icon or select Delete from the Edit menu. The selected objects are removed from the map but not stored in the clipboard.

3.18 Tool Box - Alignment and Grouping

The commands Bring to Front and Send to Back let you control the overlapping of objects. Grouping is useful for manipulating a number of objects as one. For example, to move them all the same distance or copy all to the clipboard.

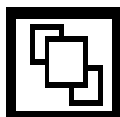
3.18.1 Send to Back



To send an object to the back of a number of overlapping objects:

- Select the object you want to send to the back
- Click on the Send to Back icon or select Send to Back from the Edit menu.

3.18.2 Bring to Front



To bring an object to the front of a number of overlapping objects:

- Select the object you want to bring to the front
- Click on the Bring to Front icon or select Bring to Front from the Edit menu.

Figure 34 shows the use of Send to Back. On the left are three overlapping objects. The right shows the overlapping after the triangle has been selected and sent to the back. The operation Bring to Front on the triangle would then bring it to the front again.

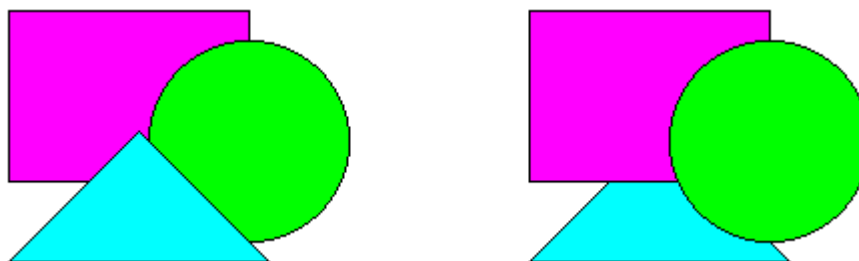
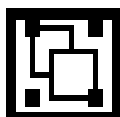


Figure 34 - Example of Send to Back

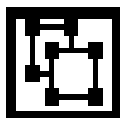
3.18.3 Group



Two or more objects can be grouped together by:

- Selecting all the objects to be grouped
- Clicking on the Group icon or selecting Group from the Edit menu.

3.18.4 Ungroup



A group of objects can be ungrouped by:

- Selecting any one of the objects in the group which selects the whole group
- Clicking on the Ungroup icon or selecting Ungroup from the Edit menu.

Figure 35 shows three objects on the left that have been selected. After these objects have been grouped they appear as a single grouped object on the right.

Figure 35

Figure 35 - Grouping objects

Figure 36 is an example of manipulating a group of objects. The group shown above has been stretched, the operation being performed on all the elements of the group.

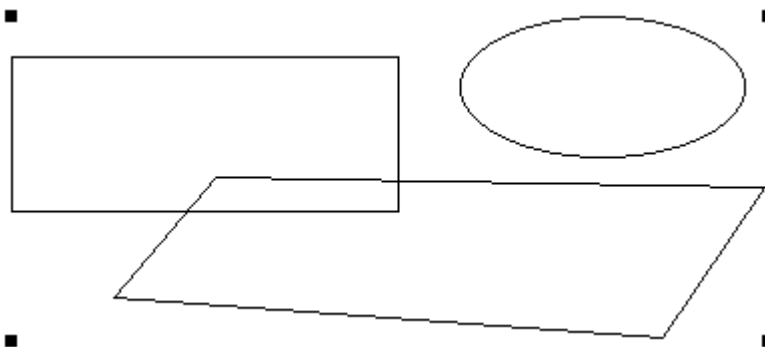


Figure 36 - Example of manipulating a group

3.19 Colour Palette

The colour palette is split into two rows as shown in Figure 37. The top row is used for selecting the outline drawing colour. The bottom row is for selecting the fill colour. Click on the button to change the colour to that shown on the button. The button showing None indicates that the colour is set to transparent - i.e. no drawing is done. E.g. set the fill colour to 'None' if the outline only of a shape is required. Set the line drawing colour to None if a filled shape with no border is to be drawn.

You can modify any colour by double clicking its button. A colour mixing dialogue is created to re-define the selected colour. All entities using that colour are changed to use the new colour (except entities on background maps). See also section 3.16.1 for information on creating new colours.

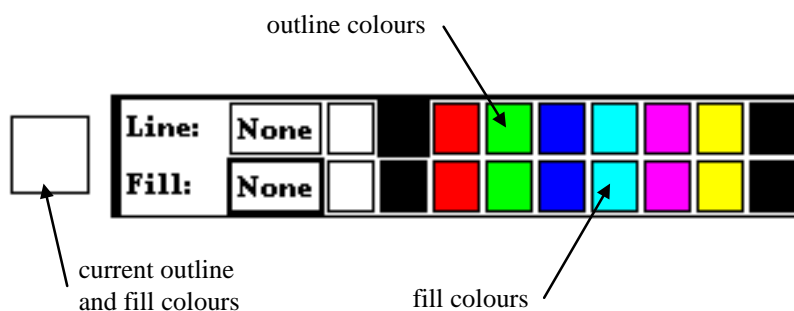


Figure 37 - Colour Palette

4. GROUP SYMBOLICS

Group Symbolics are used to display symbolic street movements based on the controller reply stages. Each stage and intergreen, plus Green Wave and the faulty (isolated) state can be displayed in a combination of all the basic drawing objects. For example, stage A could show green arrows for the main road movement and red lines or arrows for the side roads and an isolating fault could be displayed as a large red text message. It should be noted that the Link Green live update object could also show green or red arrows or lines to represent link movements. However, these only have significance when the intersection is under SCOOT control and the intergreen, Green Wave and faulty conditions cannot be displayed.

Each map can have group symbolics for one or more of the following types of equipment:

- Intersections
- Pelicans
- Diversion Signs
- Car Park Signs
- Count Detectors
- Queue Detectors
- Special Facilities
- Remote Request
- Tidal Flow Controller
- SCOOT links
- Outstation Reply Bits

The setting up procedure is described below for an intersection. The other equipment types can be set up in a similar fashion.

4.1 Creating a Symbolic for an Intersection

The steps in creating a Group Symbolic for an intersection are the following:

- Open the Map Editor and define the background to be used. For example, if symbolics for an intersection is to be defined, an NTF or DXF drawing of the intersection layout could be imported and set as the background map.
- Click on the Group Symbolic icon or select Create Group Symbolics from the UTC menu in the Map Editor. The dialogue box in Figure 38 is displayed. After one or more SCNs have been added to the map, these appear in the list of group symbolics that can be edited.

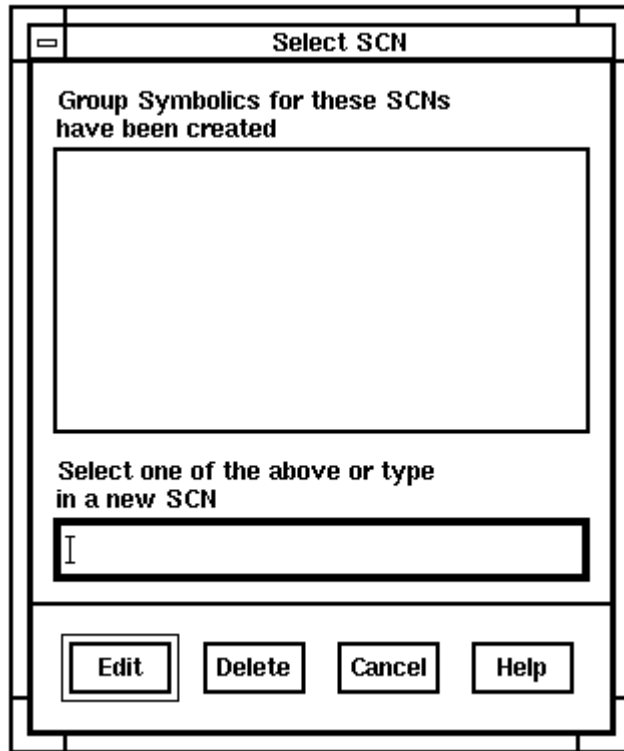


Figure 38 - Group Symbolic SCN dialogue

- Enter the SCN of a valid intersection in the selection box and click on the Edit button. The dialogue box in Figure 39 appears, which displays all the available stages and intergreens plus the Green Wave and faulty condition.

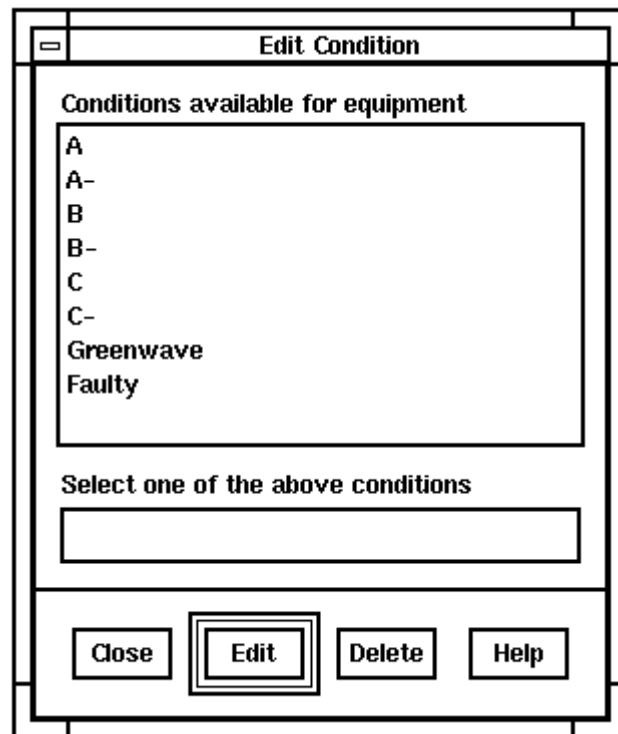


Figure 39 - Edit Symbolics dialogue

- Start defining the graphic symbols for one stage - A for example - by selecting the stage and clicking on the Edit button. All further editing to the map defines this stage and is only terminated when Close is clicked in the Edit Condition window or another stage is chosen for editing.

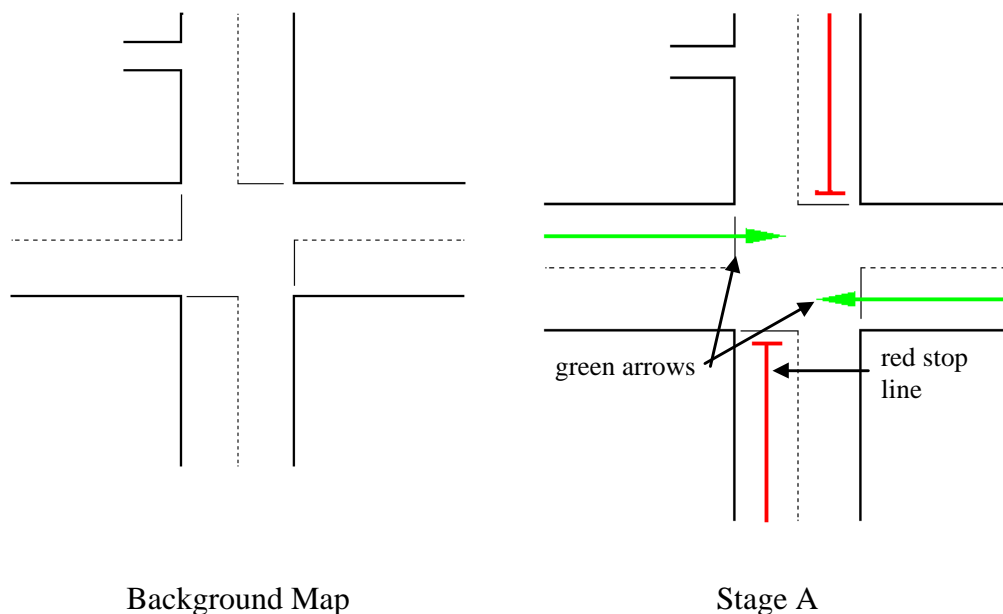


Figure 40 - Drawing stage A

- When stage A is completed, the same graphics can be used to define other stages. For example, the intergreen leaving stage A can be identical except that the green lines are changed to yellow. This is easily done before leaving the editing of stage A by:
 - (a) Selecting all the elements that represent stage A, by enclosing them in a bounding rectangle, or clicking on Edit / Select All
 - (b) Copying the selection to the clipboard by clicking on the Copy icon or selecting Copy from the Edit menu.
 - (c) In the Edit Condition dialogue box click on "A-"; that is the intergreen leaving stage A.
 - (d) Now copy the contents of the clipboard on to the map by clicking on the Paste icon or selecting Paste from the Edit menu.
 - (e) The intergreen A- is now identical to the symbolics for stage A. Modify the green lines to be yellow and/or dotted, or change the drawing elements in some way to distinguish the intergreen from stage A.
- This sequence can now be repeated to define the remaining stages and intergreens.
- If required, the Green Wave and fault conditions can be drawn. Figure 41 shows examples of these two conditions.

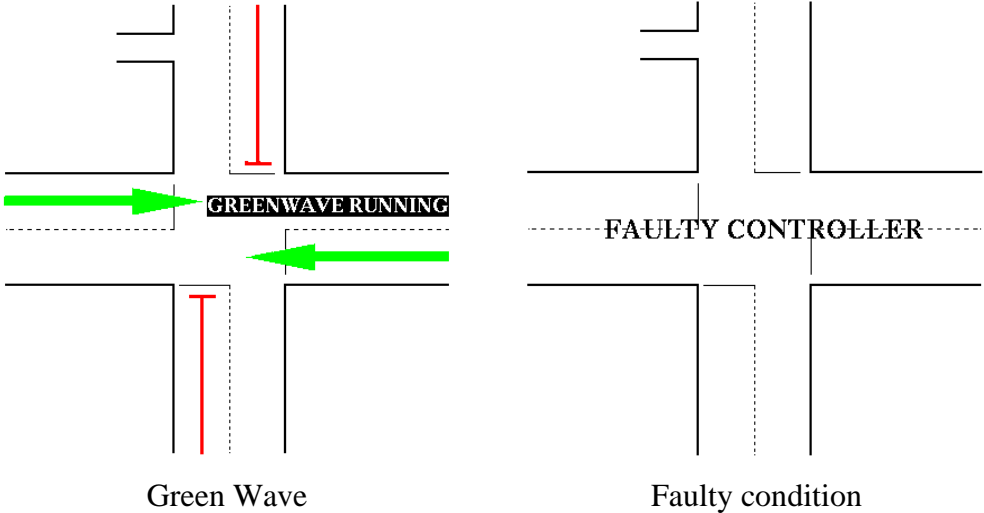


Figure 41 - Green Wave and Faulty Symbolics

5. PIXMAP EDITOR

This section describes the Pixmap Editor that is an integral part of the Map Editor.

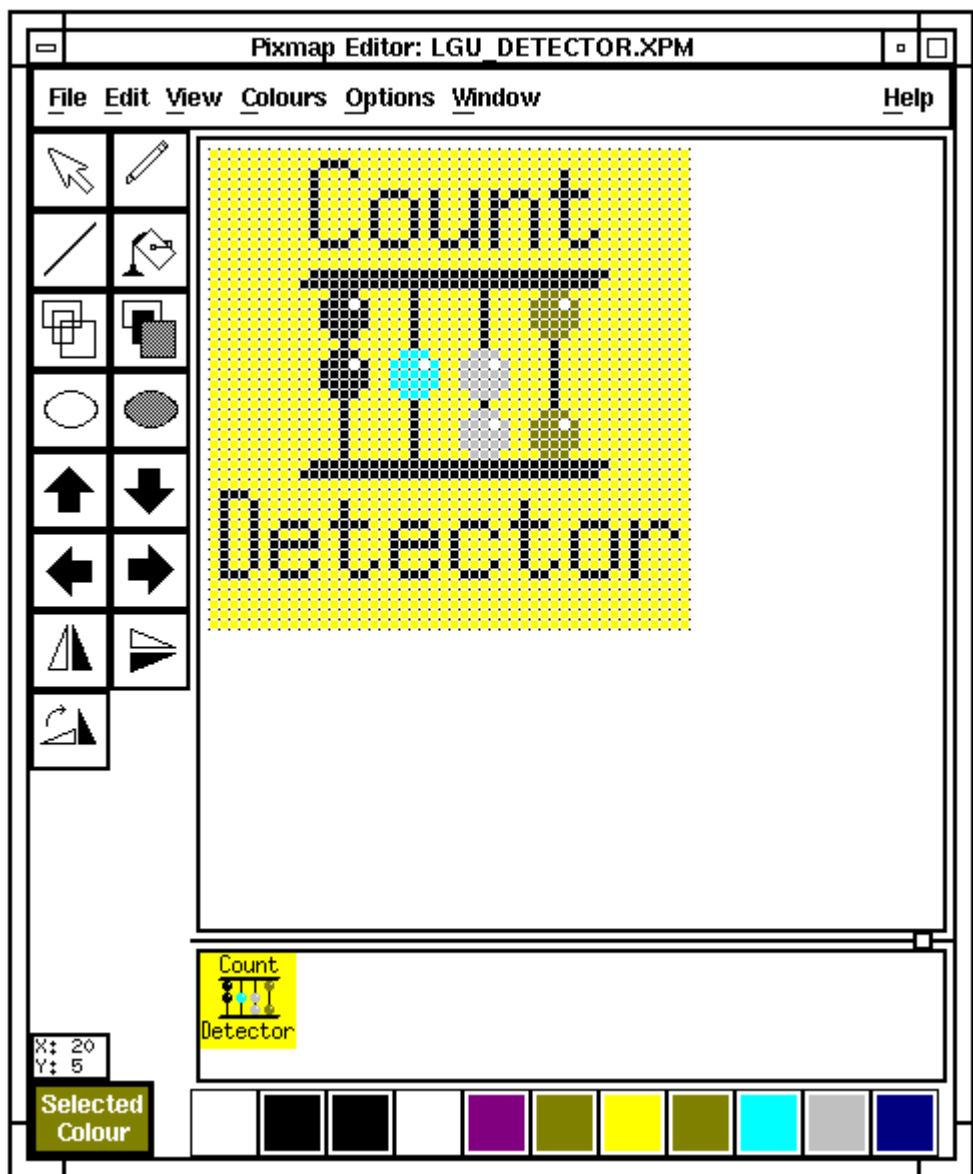


Figure 42 - Pixmap Editor

The Pixmap menu bar is made up of commands that are similar to the main Map Editor window and which are briefly described below.

5.1 Mouse Buttons

When drawing with the mouse all objects drawn with MB1 are displayed in the selected colour from the palette and objects drawn with MB3 use the defined background colour.

5.2 File Menu

The commands in the file menu are:

5.2.1 New

Clear the contents of the Pixmap Editor to start creating a new pixmap. If a modified pixmap is displayed in the editor window the user is questioned if he wishes to save it or not.

5.2.2 Open

Opens an existing pixmap. A dialogue box is displayed with a list of files that can be opened.

5.2.3 Save

Saves the existing pixmap; if the pixmap is new see "Save As" below.

5.2.4 Save As

The user is requested to enter a name for the file and also whether it is to be saved as a standard colour pixmap with extension .XPM or as a monochrome bitmap with extension .XBM.

5.2.5 Delete

Deletes an existing pixmap. A dialogue box with a list of the existing pixmaps is displayed. The user then can select a map and confirm it is to be deleted.

5.2.6 Exit

Closes the Pixmap Editor. If any changes have occurred the user is requested to confirm whether he wishes to save his changes or not.

5.3 Edit Menu

The commands in the Edit menu are:

5.3.1 Cut

Cuts the selected area to the clipboard and removes it from the current pixmap.

5.3.2 Copy

Copies the selected area to the clipboard but does not remove it from the current pixmap.

5.3.3 Paste

Pastes the contents of the clipboard into the current pixmap.

5.3.4 Clear

Deletes the selected area from the pixmap. After the selection is deleted it cannot be restored. The contents of the clipboard remain unchanged.

5.3.5 Select All

Selects everything in the pixmap.

5.4 View Menu

The View menu consists of:

5.4.1 Fatbit Size

This defines the size that each bit of the pixmap should occupy in the editor. This is solely for aiding the editing of the pixmap by enlarging each pixel. The possible options are:

- 2 x 2 pixels
- 4 x 4 pixels
- 8 x 8 pixels
- 16 x 16 pixels

5.5 Colours Menu

See Sections 3.16.1 and 3.19 for details of the use of colours.

5.6 Options Menu

The Options menu consists of:

5.6.1 Pixmap Size

This defines the size of the pixmap to be edited. The height and width of the pixmap is entered in pixels into the dialogue box.

5.7 Window Menu

The Window menu consists of:

5.7.1 New Window

Creates another window for editing such that two pixmaps can be edited at the same time. Elements can be copied from one to the other by means of the clipboard.

5.7.2 Show Clipboard

Opens another pixmap window and displays the contents of the clipboard.

5.7.3 Capture Screen Image

Allows the user to mark an area of the screen to be copied into the pixmap editor. Care should be taken in defining the area to be copied as the resulting file could be extremely large.

5.8 Tool Bar

The Pixmap Tool Bar is similar to the Map Editor Tool Bar and is described below.

5.8.1 Selection Pointer



Selects part of the drawing area. Subsequent operations can then be performed on this area.

5.8.2 Pencil



Draws a free-form line of 1 pixel width and the selected colour.

5.8.3 Draw Line



Draws as near as possible an approximation to a straight line of 1 pixel width and the selected colour.

5.8.4 Colour Fill



This allows an area of the pixmap to be filled with a single colour. First select the colour from the palette and then click the Colour Fill icon. When a pixel in the drawing area is clicked on, all neighbouring pixels with the same colour are filled with the selected colour.

5.8.5 Draw Wireframe Rectangle



An outlined wireframe rectangle with a border one pixel wide and the current selected colour is drawn in the pixmap window.

- SHIFT - constrains the object to be either a square or a vertical or horizontal line.
- CONTROL - the first point becomes the centre of the rectangle.
- SHIFT and CONTROL - combines both functions.

5.8.6 Draw Filled Rectangle



A rectangle filled in the current selected colour is drawn in the pixmap window.

- SHIFT - constrains the object to be either a square or a vertical or horizontal line.
- CONTROL - the first point becomes the centre of the rectangle.
- SHIFT and CONTROL - combines both functions.

5.8.7 Draw Wireframe Ellipse



An outlined wireframe rectangle with a border one pixel wide and the current selected colour is drawn in the pixmap window.

- SHIFT - constrains the object to be a circle or a vertical or horizontal line.
- CONTROL - the first point becomes the centre of the ellipse.
- SHIFT and CONTROL - combines both functions.

5.8.8 Draw Filled Ellipse



An ellipse filled in the currently selected colour is drawn in the pixmap window.

- SHIFT - constrains the object to be a circle or a vertical or horizontal line.
- CONTROL - the first point becomes the centre of the ellipse.
- SHIFT and CONTROL - combines both functions.

5.8.9 Shift Up



Moves the selected area up one pixel. When any part of the area reaches the top limit of the pixmap window no further movement takes place. If no selection is made then all coloured pixels in the pixmap window are moved.

5.8.10 Shift Down



Moves the selected area down one pixel. When any part of the area reaches the bottom limit of the pixmap window no further movement takes place. If no selection is made then all coloured pixels in the pixmap window are moved.

5.8.11 Shift Left



Moves the selected area left one pixel. When any part of the area reaches the left limit of the pixmap window no further movement takes place. If no selection is made then all coloured pixels in the pixmap window are moved.

5.8.12 Shift Right



Moves the selected area right one pixel. When any part of the area reaches the right limit of the pixmap window no further movement takes place. If no selection is made then all coloured pixels in the pixmap window are moved.

5.8.13 Flip Horizontally



Flips the selected area horizontally. If no selection is made then all coloured pixels in the pixmap window are flipped.

5.8.14 Flip Vertically



Flips the selected area vertically. If no selection is made then all coloured pixels in the pixmap window are flipped.

5.8.15 Rotate Clockwise 90 degrees



Each click of the mouse button rotates the selected area clockwise by 90 degrees. If no selection is made the entire pixmap is rotated.

6. USING MAP LAYERS

Map Layers can be visualised as a number of transparencies overlaying one another, each with its own image content. This gives greater flexibility in constructing and editing maps and permits filtering which layers are to be displayed. This means that in one instance all the equipment on a map - intersections, pelicans, SCOOT detectors, etc. - can be displayed and on another occasion only the intersections are displayed.

6.1 Layer Identification

Up to 32 layers can be displayed and each layer can be named for easier identification. The same names, however, apply to all maps on the system. It is therefore advisable that a standard naming convention be adopted when creating new maps. In the examples used in this handbook, the following layer names have been used:

- Layer 1 - Base Map
- Layer 2 - Intersections
- Layer 3 - Pelicans
- Layer 4 - Count Detectors
- Layer 5 - (unnamed)
- Layer 6 - SCOOT Detectors
- Layer 7 - SCOOT Regions
- Layer 8 - SCOOT Nodes
- Layers 9 to 32 - (unnamed)

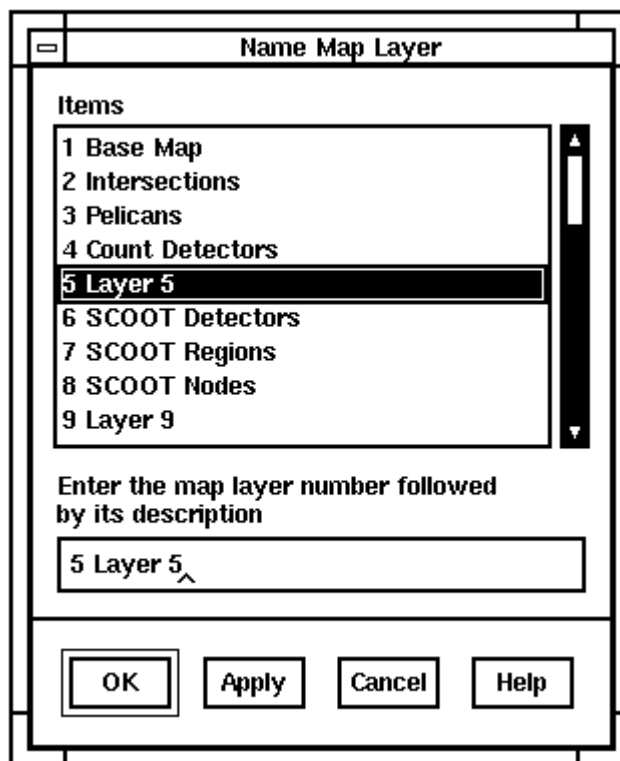


Figure 43 - Naming layers in the Map Editor

The Name Layer dialogue box, which is opened from the Options menu of the Map Editor, demonstrates the procedure for naming layers. In this case Layer 5 is being edited. To change its name, erase the text "Layer 5" and type in the new name after the layer number.

Note that this is purely an example of how layers can be used and is not a recommendation of the procedure to be used.

6.2 Defining Layers for Objects

All objects drawn on a map are associated with one or more layers. Unless specifically selected, every object is associated with Layer 1, which is the default layer. The procedure for associating an object with a layer is the following:

- Draw or select an object on the map in the Map Editor window. Note that an object already drawn can have its layers modified at any time through the Map Editor.
- Open the Select Map Layers dialogue from the Layout menu (see Figure 44).
- If this is a new object, or no layers have previously been assigned, none of the layers in the Select Map Layer window are highlighted. In this case the object is automatically associated with default layer 1.
- Click on the layer(s) to be associated with the selected object and confirm by clicking on the OK or Apply buttons. An object can be associated with more than one layer if it is to be displayed with various combinations of Live Update objects, for example. In Figure 44 the object has been explicitly associated with layer 1, or "Base Map" as it has been named.

- Save the map.

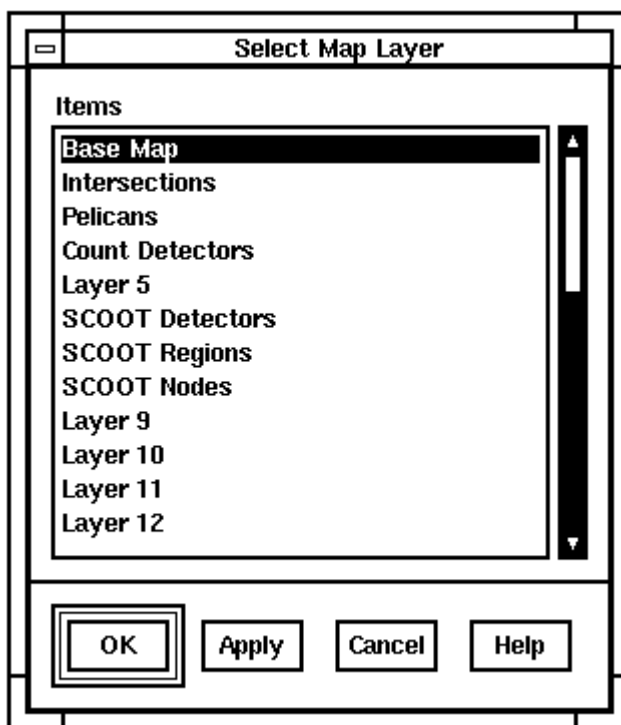


Figure 44 - Select Map Layer in Editor

6.3 Displaying Map Layers

In the Map Display window, click on the View menu and select Map Layers. The dialogue shown in Figure 45 is displayed. To display all layers of a map click on the View All Map Layers button.

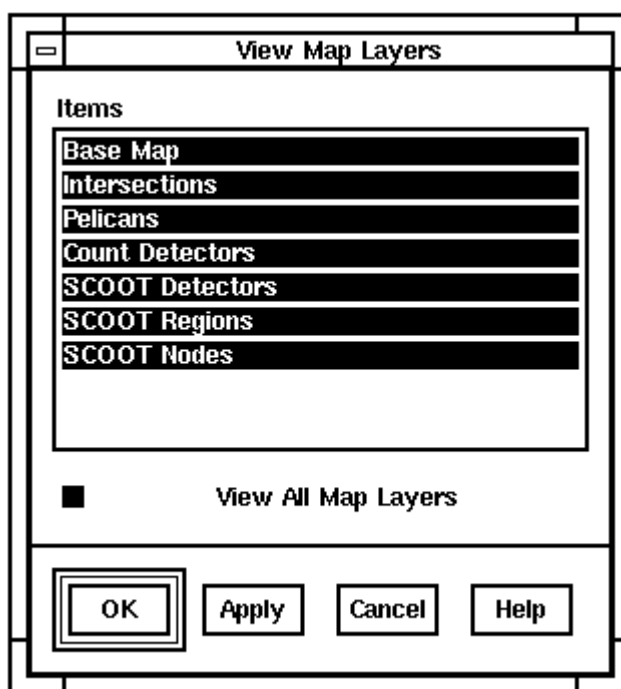


Figure 45 - Selecting layers for viewing in the Map Display

Figure 46 is a sample map on which the street markings have been drawn as part of the map (layer 1) instead of drawing them separately and importing as the Background map. The live update objects have been included on their respective layers. The layer content is therefore the following:

- Layer 1 - Base Map - road markings
- Layer 2 - Intersections - a single intersection
- Layer 3 - Pelicans - a single pelican
- Layer 8 - SCOOT Nodes - a single node

The subsequent figures show a selection of layers being made visible or invisible, as follows:

- Figure 47 shows the base map and intersection layers (1 and 2) only being visible.
- Figure 48 shows the base map and pelican layers (1 and 3) visible.
- Figure 49 shows three layers visible - base map, pelican and node (layers 1, 3 and 8).
- Figure 50 shows all layers except the base map (layers 2, 3 and 8).

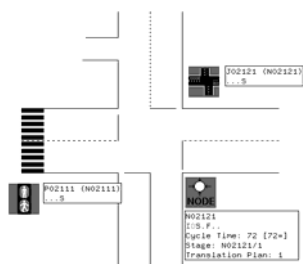


Figure 46 - All layers visible

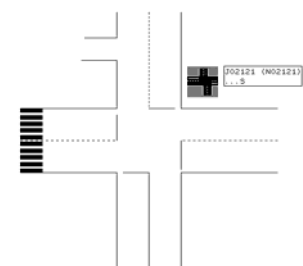


Figure 47 - Base map and Intersection Layers

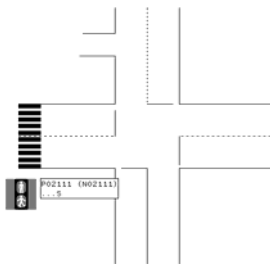


Figure 48 - Base map and Pelican Layers

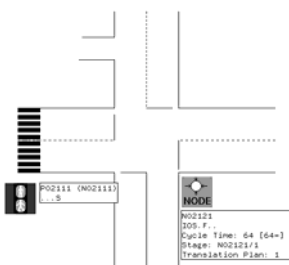


Figure 49 - Base map, Pelican and Node layers

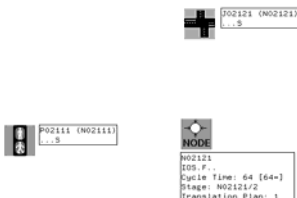


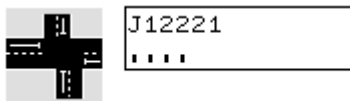
Figure 50 - All layers visible except Base map

7. MAP WINDOW INFORMATION BOXES

This section describes the contents of the information box associated with each of the live update symbols. In addition it is possible to add a textual description to each information box (see section 3.8.5 for details).

These boxes have colour coded stars contained within them. The stars are replaced by dots or coded letters in the same colours as the stars giving information about equipment states.

7.1 INTERSECTION



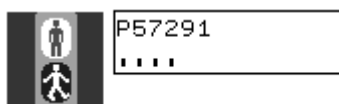
Format: Jnnnnn (Nnnnnn)
 ***** (Gnnnnn)

Description:

The four stars are colour coded:

- X Cyan Equipment isolated because OTU is faulty
 - O Green Equipment on operator imposed plan
 - F Red Equipment faulty
 - S Yellow Equipment operating on SCOOT control. S only appears if equipment forms all or part of a SCOOT node
- Nnnnnn Node SCN if under SCOOT control
 Gnnnnn Green Wave SCN if under Green Wave control

7.2 PELICAN



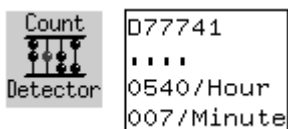
Format: Pnnnnn

Description:

The four stars are colour coded:

- X Cyan Equipment isolated because its OTU is faulty
- O Green Equipment on operator imposed plan
- F Red Equipment faulty
- S Yellow Equipment operating on SCOOT control. S only appears if equipment is on a SCOOT node.

7.3 COUNT DETECTOR



Format: Dnnnnn

mmmm /H

ppp /M

oo %O

Description:

The four stars are colour coded:

- F Red Detector faulty
- M Cyan No reply for 15 minutes
- V Yellow Detector in 'Volume on' state
- C Green Congestion above threshold (for occupancy detectors only)

mmmm last hour flow (vehicles/hour)

ppp current stored volume value (vehicles/min)

oo last minute occupancy (percentage). This %O only appears if the detector measures occupancy

7.4 QUEUE DETECTOR



Format: Qnnnnn

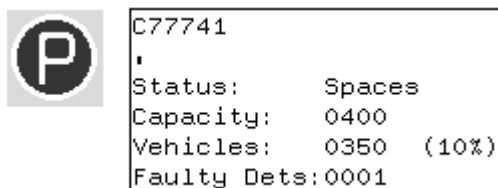
**

Description:

The two stars are coloured coded:

- F Red Detector faulty
- Q Yellow Queue formed

7.5 CAR PARK



Format: Cnnnnn

*

Status: Sign State

Capacity: mmmm

Vehicles: vvvv (pp%)

Faulty Dets: qqqq

Description:

The star is colour coded:

X Cyan Equipment isolated (OTU faulty)

Status: Shows state of car park. The possible states are:

SPACES

ALMOST FULL

FULL

CLOSED

FAULTY

mmmm Capacity of car park

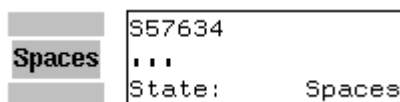
vvvv Current car park count

pp% Percentage of spaces available

qqqq Shows number of car park's count detectors that have gone faulty.

Capacity, Vehicles and Faulty Dets only appear if count detectors sited at the entrance/exit to the car park supply car park data.

7.6 CAR PARK SIGN



Format: Snnnnn

State: <Sign State>

Description:

The three stars are colour coded:

X Cyan Equipment isolated due to OTU fault

F Red Sign faulty

O Green Sign state set by operator/timetable command

<Sign State> Shows sign state as determined from the reply bits.

Possible states for entrance signs are:

- SPACES
- FULL

For named signs they are:

- SPACES
- ALMOST FULL
- FULL
- CLOSED

For city signs they are:

- SPACES Group 1
- SPACES Group 2
- SPACES Group 3
- SPACES Group 4
- SPACES Group 5
- ALMOST FULL Group 1
- ALMOST FULL Group 2
- ALMOST FULL Group 3
- ALMOST FULL Group 4
- ALMOST FULL Group 5
- FULL
- FAULTY

7.7 SPECIAL FACILITY



Format: Fnnnnn

State On/Off

[mmm]

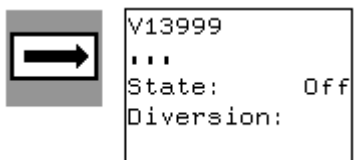
Description:

The four stars are colour coded:

- X Cyan Equipment isolated because OTU is faulty
- F Red Equipment faulty/isolated

- O Green Facility under operator control
- R White Green wave active
- mmm Time left before a green wave route becomes inactive.

7.8 DIVERSION SIGN



Format: Vnnnnn

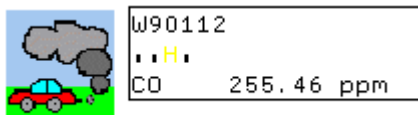
 State: On/Off
 Diversion: mmmmm

Description:

The three stars are colour coded:

- X Cyan Equipment isolated because its OTU is faulty
- F Red Equipment faulty/isolated
- O Green Sign under operator control
- mmmmm legend for SIESpace signs

7.9 POLLUTION MONITORING SENSOR



Format: Wnnnnnm

 type value units

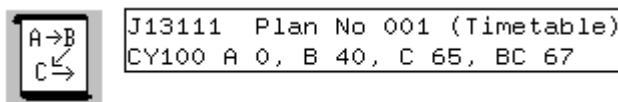
Description:

The four stars are colour coded:

- X Cyan OTU fault
- F Red No data received from the sensor for at least 5 minutes
- H Magenta High (increasing) threshold exceeded
- L Blue Low (decreasing) threshold exceeded

type Type of sensor (for example, CO, TEMP, etc.)
 value Last one-minute calibrated sensor value
 units Measurement units used.

7.10 PLAN



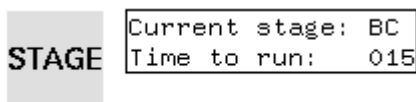
Format: abbbbb Plan No xx (yyyy)
 CY rr, s tt, s tt, s tt, s tt

The second line does not appear for pelicans.

Description:

- abbbbb Intersection or pelican SCN
- Plan No xx Which plan is running
- yyyy Type of plan running
- rr Cycle time
- s tt Stage letter and start time.

7.11 STAGE

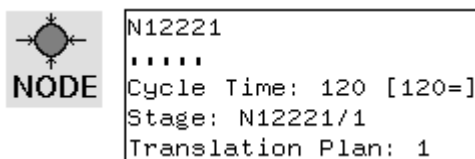


Format: Current stage ss
 Time to run ttt

Description:

- Current stage ss Stage letter
- Time to run ttt Time left to run for the stage. For SCOOT control it counts down from 127 seconds

7.12 NODE



Format: Node Nnnnnn

 Cycle time ccc [ppp&]
 Stage Nnnnnn/s
 TPLN xx

Description:

- The seven stars are colour coded:
- I Red Implemented

O Green	Offset optimiser on
S Yellow	Split optimiser on
D Blue	Double cycling
F Magenta	Forced
E Green	Bus Priority, Extension
R Magenta	Bus Priority, Recall
Cycle time ccc	Node cycle time
ppp	Minimum practical node cycle time
&	MPCY trend, + or - or = for up, down or stay decisions
Stage Nnnnnn/s	Current SCOOT stage being forced
TPLN xx	Current SCOOT translation plan.

7.13 LINK CONGESTION

This is a representation of whether SCOOT sees the link as being congested or not.

It requires the operator to create a background field to represent the link. The available field types are the following:

- LINE (including ARROW)
- POLYLINE
- BEZIER CURVE

To create a link congestion symbol, click on the Create Live Update Object icon or select this from the menu. Select the link congestion symbol and enter the SCN of the link required. Click on one of the above three drawing objects and draw this object in the map.

The background symbol has one of the following colours:

- green if there is no congestion
- yellow if there is light congestion
- white if there is medium congestion
- magenta if there is heavy congestion

In addition, the symbol is red if the link detector is suspect or faulty and the area around the symbol is cyan (light blue) if there is exit blocking.

7.14 LINK GREEN

This field is a representation of whether SCOOT sees the traffic on the link having an effective green taking into account start and end delays.

It requires the operator to create a background field to represent the link. The available field types are the following:

- LINE (including ARROW)

- POLYLINE
- BEZIER CURVE

To create a link green symbol, click on the Create Live Update Object icon or select this from the menu. Select the link green symbol and enter the SCN of the link required. Click on one of the above three drawing objects and draw this object in the map.

The background symbol is coloured green when the link has an effective green and red at all other times.

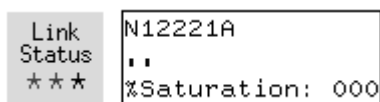
7.15 LINK QUEUE



This field is a representation of what SCOOT sees as the queue length on the link. The length of the queue is proportional to the maximum queue for the link and the field length. The red section of the fields represents the queue and green as no queue.

To create a link queue symbol, click on the Create Live Update Object icon or select this from the menu. Select the link queue symbol and enter the SCN of the link required. The drawing object SCALE can then be drawn. This is represented in the Editor as a half red and half green rectangle to assist in the orientation. Click and hold MB1 at the first point of the rectangle to be drawn and drag to the position of the opposite corner. After the rectangle has been placed on the map, its orientation can be altered, i.e. red to the top, bottom, left or right, by clicking on one of the handles and dragging past one of the other corners.

7.16 LINK STATUS



Format: Link Nnnnnnm

% Sat XXX

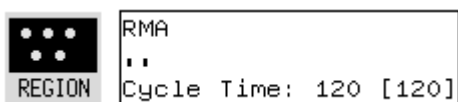
Description:

The four stars are colour coded:

- F Red Link detector suspect or faulty
- E Magenta Exit blocked
- B Cyan Bus detected
- I Blue Incident detected

XXX The percentage saturation on the link, between 0 and 999.

7.17 REGION



Format: Region Rnn aa/bb on SCOOT

**

Cycle time ccc [ttt]

Description:

The two stars are colour coded:

C Yellow Cycle time optimiser on

T Green Trend flag set

aa Nodes on SCOOT

bb Node count for region

ccc Region cycle time

ttt Preferred cycle time

7.18 SCOOT DETECTOR



Format: Detector Nnnnnnmd

Description:

The three stars are colour coded:

F Red Faulty

S Yellow Suspect

I Blue Incident detected

INDEX

Add a New Colour to the Palette	34	Group Symbolics	4, 19, 40
Alignment and Grouping tool box	38	Help.....	29
Arrow-heads.....	35	Help On Context	29
Attach Map	19	Help On Help.....	29
AutoCAD DXF.....	4, 10	Help On Version.....	29
Bezier curve	14, 17, 31	Help On Window	29
Bring to Front.....	38	Highlight When Faulty	21
Capture Screen Image	46	Hotzone.....	14, 16
Car Park	56	Hotzone Information Box Window Mode	23
Car Park Sign	57	Import	10
Change SCN	19	Import disabled map layers.....	28
Change Title.....	11	Infobox.....	4, 14, 16
Circle.....	32, 48	Insert Background Map	12
Circle Arc.....	32	Insert Bitmap Image.....	13
Clear.....	45	Intersection	55
Clipboard	37, 42	Layout Menu.....	12
Colour Fill.....	47	Legend	14, 17
Colour Palette.....	4, 5, 39	Line	14, 17, 30, 32, 33, 47, 48
CONTROL key.....	30	Link Congestion.....	61
Copy.....	37, 45	Link Green	62
Copy background colour from background map .	28	Link Queue	62
Count Detector.....	56	Link Status	62
Create a Live Update Object.....	14, 34	Live Update Symbols.....	4
Create a Text Object	34	Map Display.....	4
Create Group Symbolics	34	Map Editor	4
Cut.....	37, 45	Map Layers	13, 22, 50
Delete	10, 37, 45	Map Window Information Boxes	55
Display Grid.....	23	MB1	3, 23
Display Information Box	21	MB3	3
Diversion Sign	59	Menu Bar	6
Draw Filled Ellipse	48	MS Windows bitmap files	13
Draw Filled Rectangle	47	Name Map Layers.....	26
Draw Line	47	New.....	8, 45
Draw Wireframe Ellipse	48	New Window	46
Draw Wireframe Rectangle	47	Node.....	60
DXF	4, 10, 25, 40	NTF.....	10, 11, 40
Edit Menu	11	Open.....	9, 45
Editing		Options Menu	25
Clipboard.....	37	Ordnance Survey NTF.....	4, 10
Copy	37	Panning	6
Cut.....	37	Paste.....	37, 45
Delete	37	Pelican.....	55
Paste	37	Pencil	47
Editing tool box	37	Pie Chart	17
Ellipse	32	Pixmap	14, 16
Exit.....	11, 45	Pixmap Editor	6, 25, 44
Fatbit Size	46	Pixmap Size	46
File Menu	8	Plan	60
Fit to Window	24	Pollution Monitoring Sensor.....	59
Flip Horizontally.....	48	Polygon.....	31
Flip Vertically	49	Polyline	14, 17, 30
Fonts.....	21	Preferences.....	27
Green Wave	41	Quadrant	31
Grid	5	Queue Detector	56
Grid Options	26	Rectangle	33
Group	13, 38	Refresh Window	23

Region.....	63	SHIFT key	12, 30
Resize Map.....	12	Shift Left.....	48
Restore Options.....	29	Shift Right.....	48
Rotate	49	Shift Up.....	48
Rotate Text.....	36	Show Clipboard	46
Rounded rectangles.....	33	Snap to Grid.....	25
Save.....	9, 45	Special Facility	58
Save As	10, 45	Square	33
Save Layout	28	Stage	60
Save Map	10	Status Line	5
Save Options	28	Status Line Area.....	29
Scale.....	14, 17	Text object	34
SCOOT Detector.....	63	Title Bar	5
Select All.....	12, 46	TMC computer.....	35
Select Area	24	Tool Bar	12, 29, 47
Select Feature.....	11	Tool Box	5, 15
Select Map	12	Ungroup	38, <i>See</i> Group
Select object(s).....	30	User Text	20
Selection Pointer	47	UTC Menu	14
Send to Back	38	View Menu	22
Set Arrow-Head Style.....	35	Web Export Options	28
Set Background colour to black.....	28	X Bitmap Files	13
Set Fill Pattern.....	35	X Pixmap Files.....	13
Set Line Style.....	35	X server.....	10
Set Line Width.....	34	XBM	13
Set map size from active viewport.....	28	XPM.....	13
SHIFT and CONTROL keys	30	Zoom Menu	24
Shift Down	48		