EXOR MapCapture Configuration Guide

Trademark

Bentley and the "B" Bentley logo are either registered or unregistered trademarks or service marks of Bentley Systems, Incorporated, or one of its direct or indirect wholly-owned subsidiaries.

Other brands and product names are trademarks of their respective owners.

Copyright

Copyright © 2013 Bentley Systems, Incorporated.

All Rights Reserved.

Including software, file formats, and audiovisual displays; may only be used pursuant to applicable software license agreement; contains confidential and proprietary information of Bentley Systems, Incorporated and/or third parties which is protected by copyright and trade secret law and may not be provided or otherwise made available without proper authorization.

Restricted Rights Legend

If this software is acquired for or on behalf of the United States of America, its agencies and/or instrumentalities ("U.S. Government"), it is provided with restricted rights. This software and accompanying documentation are "commercial computer software" and "commercial computer software documentation", respectively, pursuant to 48 C.F.R. 12.212 and 227.7202, and "restricted computer software" pursuant to 48 C.F.R. 52.227-19(a), as applicable. Use, modification, reproduction, release, performance, display or disclosure of this software and accompanying documentation by the U.S. Government are subject to restrictions as set forth in this Agreement and pursuant to 48 C.F.R. 12.212, 52.227-19, 227.7202, and 1852.227-86, as applicable.

Contractor/Manufacturer is Bentley Systems, Incorporated, 685 Stockton Drive, Exton, PA 19341-0678.

Unpublished - rights reserved under the Copyright Laws of the United States and International treaties.
# Document Tracker

## Document Details

<table>
<thead>
<tr>
<th>File:</th>
<th>Prepared by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MapCapture Configuration Guide v4.7</td>
<td>J Earnshaw</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manual Name:</th>
<th>Reviewed by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MapCapture Configuration Guide</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Version:</th>
<th>Approved for issue by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version: 4.7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of Issue:</th>
<th>Product Manager:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 2014</td>
<td>Julian Earnshaw</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>File Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Centre/Exor/Product Manuals/4.7 Product Manuals/4.7 completed documentation/MapCapture Configuration Guide v4.7.docx</td>
</tr>
</tbody>
</table>

## Document Version Control

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>By</th>
<th>Chapter/Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-Mar-2010</td>
<td>JE</td>
<td></td>
<td>Document created</td>
</tr>
<tr>
<td>2</td>
<td>11-Nov-2010</td>
<td>JE</td>
<td></td>
<td>Updated for Version 4.3</td>
</tr>
<tr>
<td>3</td>
<td>May 2010</td>
<td>IS</td>
<td>None</td>
<td>No Changes for 4.4</td>
</tr>
<tr>
<td>4</td>
<td>Nov 2011</td>
<td>IS</td>
<td>P22</td>
<td>Photo attributes added</td>
</tr>
<tr>
<td>5</td>
<td>Oct 2012</td>
<td>IS</td>
<td>All</td>
<td>Document reviewed for 4.6 release</td>
</tr>
<tr>
<td>6</td>
<td>Feb 2013</td>
<td>IS</td>
<td>P4</td>
<td>Navigation tree added</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P13</td>
<td>Logging Defects against assets added</td>
</tr>
<tr>
<td>7</td>
<td>Feb 2014</td>
<td>BA/IS</td>
<td>All</td>
<td>Re-formatted into Bentley template for 4.7 release</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Section 10 - Using eB Document Manager added</td>
</tr>
</tbody>
</table>
**Table of Contents**

1. Introduction........................................................................................................................................... 1
2. Running MapCapture.............................................................................................................................. 2
3. Creating a Template.................................................................................................................................. 3
   3.1 Navigation Tree .................................................................................................................................... 3
4. Networks Folder......................................................................................................................................... 5
   4.1 Extracting and Using a Reference Layer ............................................................................................ 5
      4.1.1 General Tab.................................................................................................................................. 9
      4.1.2 Symbol ....................................................................................................................................... 10
      4.1.3 Renderer .................................................................................................................................... 11
      4.1.4 Standard Labels ......................................................................................................................... 12
      4.1.5 Coordinate System .................................................................................................................. 13
      4.1.6 Field Definitions ..................................................................................................................... 14
   4.2 Logging Defects against Assets ......................................................................................................... 15
5. Assets Folder............................................................................................................................................. 16
6. Inspections Folder.................................................................................................................................... 20
   6.1 Detailed Inspections .......................................................................................................................... 20
   6.2 Safety Inspections ............................................................................................................................ 23
      6.2.1 Default Values on the Right .................................................................................................... 28
7. Background Maps Folder.......................................................................................................................... 30
   7.1 OS Raster Images 250k 50k 25k 10k ............................................................................................... 31
   7.2 Streetview Data ................................................................................................................................... 31
   7.3 OS Mastermap .................................................................................................................................... 32
   7.4 Shapefiles .......................................................................................................................................... 32
   7.5 Aerial Photos ..................................................................................................................................... 33
      7.5.1 General Tab .................................................................................................................................. 34
      7.5.2 Symbol ....................................................................................................................................... 35
      7.5.3 Renderer .................................................................................................................................... 36
      7.5.4 Standard Labels ......................................................................................................................... 37
      7.5.5 Coordinate System .................................................................................................................. 38
8. Using GPS.................................................................................................................................................. 39
   8.1 Configuring MapCapture’s GPS listener ............................................................................................ 39
9. Image Catalogues (Schema File and Catalogue file) ............................................................................... 41
   9.1 First Step ........................................................................................................................................... 41
   9.2 Second Step ....................................................................................................................................... 42
10. Using eB Document Manager ............................................................................................................... 43
    10.1 Prerequisites ..................................................................................................................................... 43

**CONFIDENTIALITY STATEMENT**

The contents of this document, including system ideas and concepts, are confidential and proprietary in nature and are not to be distributed in any form without the prior written consent of Bentley, Inc.
TABLE OF CONTENTS

10.2 New Application Parameters .................................................................43
10.3 Export changes.........................................................................................44
1 Introduction

This guide is designed for the Admin User of MapCapture and not for the end user inspector. MapCapture will take a while for you to set it up exactly the way you want the end user to see it; this time is well worth while spending as the end user will have a simple and easily accessible application.

This guide will go through the process of configuring the system and then saving the final result to a template for the end user inspector.
2 Running MapCapture

Starting MapCapture is achieved by double-clicking on the MapCapture icon.
Having double-clicked the MapCapture icon you are presented with the screen below. This will allow the user to start a new survey from scratch, an existing template, an existing saved survey or open a recently used survey.
Typically an inspector will start the day and use the ‘Create Map Document from Template’ but we are going to start from scratch.

![MapCapture Executable](image1)

**Figure 1 - MapCapture Executable**

![Start MapCapture](image2)

**Figure 2 - Start MapCapture**
3 Creating a Template

We need to start with the ‘Create Empty Map Document’ and then click select. This will take us to a blank canvas to start creating our new project.

Projects are built up of three to four different areas and we will be dealing with these separately. These areas are

- **Network** – the network layers are the reference layers. These layers are used to log the defects or assets against, these layers hold all the reference information so when the new items are loaded back into the main Exor application they can be associated with the correct network section or asset.
- **Assets** – these layers are extracted from the main Exor application and allow the creation and editing of asset items.
- **Inspections** – these layers are the defect layers. Again these are extracted from the main application, these layers are the defect activities which are then split down to actual individual defect types once created. For example, a defect activity could be ‘Minor Carriageway’ but the actual defect could be a ‘Pothole’.
- **Background Maps** – as the name suggests this is background information to allow the inspector to find the correct location with a more typical GIS/mapping user interface.

3.1 Navigation Tree

The following is the most comprehensive view of the navigation tree within map capture. The navigation tree will have this many folders populated if the user is to collect the following from within a single project:

- Asset data collection
- Asset data modification
- Inspections and defect collection against a network and/or asset data
Figure 3 - Navigation Tree

Key:
1. Network Shapefile (MapCapture Config Guide – Chapter 3)
2. Asset Shapefiles, used if you are logging defects against assets using the Map Capture Interface - MCI. (Map capture Interface User Guide – Chapter 3)
3. Assets types to be collected (MapCapture Config Guide – Chapter 4)
4. Inspection Activities to be carried out against network and/or asset data (MapCapture Config Guide – Chapter 5)
5. System Generated, allows user to symbolise each theme to show which asset or network item has been inspected. As each item is inspected the symbol will change. May require save and re-load of the MapCapture project before these are displayed.
4 Networks Folder

4.1 Extracting and Using a Reference Layer

The first thing we need to do is have a centre line of the network shape file to log the assets and defects against. Spatial Manager will be used to achieve this, but other GIS systems can be used to generate the required shape file. Please contact your GIS section for more details on other systems.

We need to select the required area that we want within MapCapture using the selection tool, after clicking on the selection tool icon drag a window around the network you require.

![Network Layer](image)

**Figure 4 - Network Layer**

Having selected the required area, click on the Display tab. Right click on the Network Layer you wish to export and go to Data/export data.

![Export Data](image)

**Figure 5 - Export Data**

The Export data box will appear.
Select the location you want to send the output to then select the ok button.

**Figure 6 - Export Location**

**Figure 7 - Progress Monitor**

**Note:** For MapCapture to work you will require two key fields in the shape file these are AGENCY and LINKCODE as one field and SECTION as another, for example:

Typical Example for RMMS type Network 1234A354 P/12345

<table>
<thead>
<tr>
<th>Agency Code of</th>
<th>1234</th>
<th>4 Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linkcode of</td>
<td>A354 P</td>
<td>6 Characters</td>
</tr>
<tr>
<td>Section Number</td>
<td>00045</td>
<td>5 Characters</td>
</tr>
</tbody>
</table>

These have to match the format of your main Exor system. These resulting fields in the shape file need to be:

<table>
<thead>
<tr>
<th>AGENCYLINKCODE</th>
<th>1234A354 P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION</td>
<td>00045</td>
</tr>
</tbody>
</table>
This will now generate the required network files in the export directory specified. We now need to add these files to the ‘Routes’ folder on the MapCapture device we are setting up, this ‘Routes’ folder is normally found under c:\Exor\MC4\routes but can be user defined to a different location if required. These paths are found within the options \ settings tab. We will cover the options in a later section.

Now we have our shape file we now need to add this to the MapCapture application. So, right-click on the network folder and click on the Add theme Wizard. This will take you to the routes folder where you can select the centre line we extracted earlier highlight it and click open.

We now need to look at this layer and make it referenceable by the system. MapCapture is used by a lot of different customers and therefore we have to configure the layer to work with their network.

To achieve the correct results you need to know a little about what columns you have within the extracted Shape file, to see the fields in your shape file you can right-click the layer in the tree and select theme properties. Then click on the last one on the left called Field Definitions.
As you can see there are a number of different fields in my example the main ones we require to make MapCapture work are below.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Caption</th>
<th>Visible</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE_ID</td>
<td>NE_ID</td>
<td>True</td>
</tr>
<tr>
<td>UNIQ</td>
<td>UNIQ</td>
<td>True</td>
</tr>
<tr>
<td>DESCRIPTIO</td>
<td>DESCRIPTIO</td>
<td>True</td>
</tr>
<tr>
<td>SECT_LENGTH</td>
<td>SECT_LENGTH</td>
<td>True</td>
</tr>
<tr>
<td>START_DATE</td>
<td>START_DATE</td>
<td>True</td>
</tr>
<tr>
<td>AGENCY</td>
<td>AGENCY</td>
<td>True</td>
</tr>
<tr>
<td>LINKCODE</td>
<td>LINKCODE</td>
<td>True</td>
</tr>
<tr>
<td>AGENCYLINK</td>
<td>AGENCYLINK</td>
<td>True</td>
</tr>
<tr>
<td>SECTION</td>
<td>SECTION</td>
<td>True</td>
</tr>
<tr>
<td>ROAD_CLASS</td>
<td>ROAD_CLASS</td>
<td>True</td>
</tr>
<tr>
<td>START_NODE</td>
<td>START_NODE</td>
<td>True</td>
</tr>
<tr>
<td>END_NODE</td>
<td>END_NODE</td>
<td>True</td>
</tr>
<tr>
<td>SECTION_CL</td>
<td>SECTION_CL</td>
<td>True</td>
</tr>
<tr>
<td>RD_ENV</td>
<td>RD_ENV</td>
<td>True</td>
</tr>
<tr>
<td>GEOLOC_LEN</td>
<td>GEOLOC_LEN</td>
<td>True</td>
</tr>
</tbody>
</table>

**Note:** These are the typical values found on most sites. However your GIS section may have called these columns something different in your spatial view so you may need to ask them for the details.

We will need these details later on when we come to configure the Inspections Layer. Also in the Theme Properties there are a number of other things we can set.
4.1.1 General Tab

This is where we set the general properties of the layer.

- **Name** field is used to set the Layer name by default it will inherit the layer name from the shape file.
- **Display As** is a line layer for our network as it is the road centre line.
- **Comments** General comments field (you may find MapCapture comments in here if the layer hasn’t got the usual reference fields)
- **Show Layer at all Scales** if this radio button is highlighted this layer will always be displayed no matter what zoom level the map has been set to.
- **Hide Layer at all Scales** if this radio button is highlighted then this layer will not be displayed (DO NOT USE ON NETWORK LAYER) if used on the network layer when defects/assets are created they won’t be able to find the reference layer.
- **Show Layer when** this allows layers to be turned on and off at different zoom levels. Scale > is the max zoomed out scale and the Scale< is the minimum scale when the layer will be switched off.
4.1.2 Symbol

This tab is used to define the look of the lines on the map:

- **Colour** this is the main colour for the line.
- **Outline Colour** if the line style has two colours then this is used for the second one.
- **Style** this drop down list is used to select the line style.
- **Size** the greater the number the thicker the line appears on the map.
4.1.3 **Renderer**

This is used to define the presentation.

**Unique** this will render the lines based on one of the fields within the layer for example ROA_NUMBER (Road Number), RSE_MAINT_CAT (Maintenance Classification), ENVIR_NAME (urban/rural), ROAD_CLASS (Road Classification) etc.

Once the required field is selected press the set button and the unique values will be displayed on the right. The individual colours can be changed by double-clicking on the colour to change and selecting from the pop up pallet. Once happy with the colour choice click the set button.

**Classes** a unique renderer to represent a way of classifying features into categories or classes, by drawing different symbols for features based on numeric attribute values.

![Figure 12 - Renderer](image)
4.1.4 Standard Labels

This allows text to be added to a feature on the map most commonly used for labelling OS text (house numbers, road names etc)

- **Text Field** Pick list from the layer. OS layers will generally have a column called text.
- **Horizontal Alignment** Pick list choice. This is Left/Centre/Right of the features centre.
- **Vertical Alignment** Pick list choice. This is Top/Centre/Bottom/Baseline of the features centre.
- **Font** the Font to be used to display the text.
- **XOffset Field** Pick list from the layer to offset the text by.
- **YOffset Field** Pick list from the layer to offset the text by.
- **Rotation Field** Most OS layers contain a rotation column normally called Text Angle or similar, this automatically rotates the text to be in line with the map features.
- **Size Field** Most OS layers contain a size column normally called Text Size or similar, this automatically sizes the text to be in line with the zoom factor of the map.
- **Rotation** a manual way to rotate all the text on the map. This is a slide from 0° to 359°
- **Draw Features** a check box to turn on and off the features being labelled. For example, you don’t need the dot feature of a house number when the house number on its own is enough.
- **Allow Duplicates** if a feature is labelled multiple times, if this box is unchecked it will only display one of them.
- **Splined Text** The text will be rotated to ‘fit’ the linework of a feature (such as a road).
- **Flip** The text will be flipped through 180°
- **Set Button** Once a feature has been changed then press the set button to set it for that layer, then the Apply button to apply the changes.
- **Apply** used after the set button to apply changes.
4.1.5 Coordinate System

All UK sites will typically use the British National Grid as shown above for their map references.
4.1.6 Field Definitions

This is a complete list of all the columns within the shape file. The visible flag can be used to turn off unwanted aspects of the layers so they won’t show up when a user queries the map layers.

Having configured the layer we can now see it in the main window.

![Figure 15 - Configured Layers](image-url)
4.2 Logging Defects against Assets

If you are proposing to log defects against individual assets the additional asset shapefiles will need to be loaded into this folder in the same way as the network, these will have been placed in the Downloads folder within map capture. Using the add theme wizard navigate to the appropriate folder and add the asset layers. These asset layers will have been created using the Map Capture Interface (Map Capture Interface User Guide – Chapter 4).

Note: Care should be taken when logging defects against assets using map capture as the list of available activities is not restricted by the asset type selected. This could lead to meaningless activity/defect combinations being associated with an asset within map capture. This will be picked up when the user attempts to load the inspection back into the system where they will have the opportunity to correct the errors using the Maintenance Inspection Summary/Error Correction form – MAI4405.
5 Assets Folder

Having now added the centre line for the network we can then select the asset items we will be collecting against it. MapCapture can be used for both defect surveys and asset collection.

To select the assets we need to add to the map. Right click on the assets folder and click ‘Add Theme Wizard’

And the following window will pop up.

Figure 16 - Add Theme Wizard - Assets
This form is split into two sections. The left is the list of the available assets to be collected and the right is where we can set the Defaults for the assets to be collected.

Assets can be selected by clicking the check box next to the asset. Some assets have a red Question mark against them and can’t be selected until the system is told what type of asset geometry is being collected. MapCapture can collect Point, Linear and Polygon items.

To set the individual items highlight the asset on the left and using the drop down box next to Geometry select the relevant type.

Most existing customers will be collecting either Point or Linear items.
Each of the items to be collected can be checked individually or by right-clicking you can select all.

![Select All Items](image)

**Figure 19 - Select All Items**

The select all function will pick up all the assets whose geometry has been defined.

![Default Settings](image)

**Figure 20 - Default Settings**

The Default Information on the right shouldn’t need changing apart from the ‘Network Id’ and the ‘Unique’ fields. These are the fields in your shape file that define the network unique id and section details.

On the right of the grid there are three fields headed ‘M’ ‘E’ and ‘G’ these stand for:

- ‘M’ Mandatory, ‘E’ Editable, and ‘G’ Grid

This allows the administrator to set which fields are mandatory or editable by setting the flags to ‘Y’ = Yes or ‘N’ = No.

If the field has been set to mandatory, the user will have to put the details in before they can save the record. Editable fields can only be changed if the flag has been set to ‘Y’, this allows the administrator to restrict which fields can be updated (normally the network is protected).

The Grid field is displayed on the top right when collecting the asset.
Having selected the assets to be collected click save to save the changes made and then click apply to add them to the map.

![Figure 21 - View Asset Selections](image-url)
6 Inspections Folder

6.1 Detailed Inspections

Inspections are the key component for most users and are set up on the same way as the assets. Firstly, right-click on the inspections folder.

![Figure 22 - Add Theme Wizard - Detailed Inspections](image)

Having clicked the add theme wizard the following pop up box will appear.
Figure 23 - Data Layers - Inspections

The available defects to be collected are on the left hand side of the panel and the defaults can be set on the right hand side. Check the boxes of the activities to be inspected on the left.

If you intend to collect BoQ items against the defects you can set the number that can be collected against each defect. Set this to something like 10 which would cover most eventualities.

Figure 24 - BoQ Items
We are now going to set the network information from the reference layer we collected earlier. These are:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>V2 Value</th>
<th>V4 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>network id</td>
<td>@Ref.RSE_HE_ID</td>
<td>@Ref.NE_ID</td>
</tr>
<tr>
<td>Section Desc</td>
<td>@Ref.RSE_DESCR</td>
<td>@Ref.ROAD_DESCR</td>
</tr>
<tr>
<td>Link</td>
<td>@Ref.RSE_LINKCO</td>
<td>@Ref.AGENCYLINK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(@Ref.LINK if using MCI for inspections)</td>
</tr>
<tr>
<td>Section</td>
<td>@Ref.RSE_SECT_N</td>
<td>@Ref.SECTION</td>
</tr>
</tbody>
</table>

**Note:** These are the typical values found on most sites. However your GIS section may have called these columns something different in your spatial view so you may need to ask them for the details.

Edit these fields with your values as explained earlier on Page 8.

![Figure 25 - Default Settings](image)

Having created the project so far it is now worth saving it. This is achieved by clicking on the save icon on the top left of the toolbar (floppy disk icon).
6.2 Safety Inspections

Safety Inspections are configured in a similar way to detailed inspections.

Having clicked the add theme wizard the following pop up box will appear. The first layer we need to select is the safety inspections activity.

You will then get a pop up box telling you that the rest of the activities you now select will be available in the safety inspection but will not be added to the inspections tree.
The available defects to be collected are on the left hand side of the panel and the defaults can be set on the right hand side. Check the boxes of the activities to be inspected on the left.

If you intend to collect BoQ items against the defects you can set the number that can be collected against each defect. Set this to something like 10 which would cover most eventualities.

We are now going to set the network information from the reference layer we collected earlier. These are:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>V2 Value</th>
<th>V4 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>network id</td>
<td>@Ref.RSE_HE_ID</td>
<td>@Ref.NE_ID</td>
</tr>
<tr>
<td>Section Desc</td>
<td>@Ref.RSE_DESCR</td>
<td>@Ref.ROAD.Descr</td>
</tr>
<tr>
<td>Link</td>
<td>@Ref.RSE_LINKCO</td>
<td>@Ref.AGENCYLINK</td>
</tr>
<tr>
<td>Section</td>
<td>@Ref.RSE_SECT_N</td>
<td>@Ref.SECTION</td>
</tr>
</tbody>
</table>

**Note:** These are the typical values found on most sites. However your GIS section may have called these columns something different in your spatial view so you may need to ask them for the details.

Edit these fields with your values as explained earlier on Page 8.
Having created the project so far it is now worth saving it. This is achieved by clicking on the save icon on the top left of the toolbar (floppy disk icon)

**Figure 30 - Default Settings**

**Figure 31 - Save Changes**
This will pop up the following window.

![Select a Background Map](image)

Figure 32 - Save Project

Type in the required file name of the project to be saved, then click the Save button.
The following survey defaults box will appear.

![Survey Defaults](image1.png)

*Figure 33 - Survey Defaults*

These default values are used when adding no defects on the network. Select from the pull down list and the click OK. Having saved the project, the file name will be displayed on the top banner.

![Project File Name](image2.png)

*Figure 34 - Project File Name*
### 6.2.1 Default Values on the Right

Fields that can be changed are highlighted in Yellow.

<p>| <strong>Network Id</strong> | @Ref.RSE.HE_ID | Network Id column shape file (NE_ID,RSE.HE_ID) |
| <strong>Section Description</strong> | @Ref.RSE_DESCR | Description column from the shape file |
| <strong>Link</strong> | @Ref.RSE_LINKCO | Admin Unit and Link column from shape file |
| <strong>Section</strong> | @Ref.RSE_SECT_N | Section column from shape file |
| <strong>Chainage</strong> | @Ref.StartMeasure | Chainage from shape file when defect created |
| <strong>Asset Id</strong> | @Ref.IIT_NE_ID | Asset id if defect recorded against asset |
| <strong>Easting</strong> | @Geo.StartX | Easting of defect |
| <strong>Northing</strong> | @Geo.StartY | Northings of defect |
| <strong>First Inspector</strong> | @Doc.INSPECTOR | Inspector from LOV |
| <strong>Inspection Type</strong> | D | Inspection Type |
| <strong>Initiated By</strong> | Normal | Initiated from LOV |
| <strong>Second Inspector</strong> | N Normal | Inspector from LOV |
| <strong>Direction</strong> | FINE Fine | Direction from LOV Forward or Reverse |
| <strong>Weather Conditions</strong> | DRY Dry | Weather from LOV |
| <strong>Surface Conditions</strong> | @Ref.IIT_INV_TY | Surface condition from LOV |
| <strong>Activities Inspected</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>XSP</strong> | @MCP.Time | different for each defect don't fill in |
| <strong>Location</strong> | N | Inventory Code if defect recorded against Inventory |
| <strong>Inventory Code</strong> | I New Asset | Defect Time from device |
| <strong>Defect Time</strong> | @MCP.Date | different for each defect don't fill in |
| <strong>Identity Code</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Inventory Changed</strong> | @Ref.Name | different for each defect don't fill in |
| <strong>Notify</strong> | @Ref.Type | different for each defect don't fill in |
| <strong>Special Instructions Code</strong> | @Ref.FeatureID | different for each defect don't fill in |
| <strong>Category</strong> | N | Default Priority from LOV |
| <strong>Priority</strong> | N | Default Action Free Text |
| <strong>Action Taken (Imm)</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Date (Imm)</strong> | different for each defect don't fill in | Different Action Free Text |
| <strong>Time (Imm)</strong> | different for each defect don't fill in | Different Action Free Text |
| <strong>Action Taken (temp)</strong> | different for each defect don't fill in | Has defect been exported |
| <strong>Date (temp)</strong> | different for each defect don't fill in | Edit mode |
| <strong>Time (temp)</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Exported</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Edit Mode</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Activity</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Feature Id</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Treatment Code</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Treatment Code</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Defect Date</strong> | Date taken from Device | different for each defect don't fill in |
| <strong>RefName</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>RefType</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>RefID</strong> | different for each defect don't fill in | different for each defect don't fill in |
| <strong>Time (temp)</strong> | different for each defect don't fill in | different for each defect don't fill in |</p>
<table>
<thead>
<tr>
<th>Action Taken Now?</th>
<th>different for each defect don’t fill in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (perm)</td>
<td>different for each defect don’t fill in</td>
</tr>
<tr>
<td>Action Taken Now?</td>
<td>different for each defect don’t fill in</td>
</tr>
<tr>
<td>Photo1</td>
<td>different for each defect don’t fill in</td>
</tr>
<tr>
<td>Photo2</td>
<td>different for each defect don’t fill in</td>
</tr>
<tr>
<td>Description</td>
<td>different for each defect don’t fill in</td>
</tr>
<tr>
<td>Photo3</td>
<td>different for each defect don’t fill in</td>
</tr>
<tr>
<td>Photo4</td>
<td>different for each defect don’t fill in</td>
</tr>
</tbody>
</table>
7 Background Maps Folder

Background Mapping isn’t required for MapCapture but provides the user with valuable reference layers to locate the defect or asset.

Typical background data is:
7.1 OS Raster Images 250k 50k 25k 10k

![Figure 35 - OS Raster Images](image)

7.2 Streetview Data

![Figure 36 - Streetview Data](image)
7.3 OS Mastermap

Figure 37 - Streetview Data

7.4 Shapefiles

Figure 38 - Shapefiles
7.5 Aerial Photos

Right click on the background mapping folder, click on the Add theme Wizard. This will take you to the maps folder where you can select the required background mapping files, multiple files can be selected by using the ‘Shift’ or ‘Ctrl’ keys once the required files have been highlighted click the open button. This will add the background mapping to the project. We now need to configure each map for zoom levels, line styles and text styles as required. This is done by right-clicking on each layer and clicking theme properties.
7.5.1 General Tab

This is where we set the general properties of the layer.

**Figure 40 – Layer Properties**

- **Name field** is used to set the Layer name by default it will inherit the layer name from the shape file.
- **Display As** is a line layer for our network as it is the road centre line.
- **Comments General** comments field (you may find MapCapture comments in here if the layer hasn’t got the usual reference fields)
- **Show Layer at all Scales** if this radio button is highlighted this layer will always be displayed no matter what zoom level the map has been set to.
- **Hide Layer at all Scales** if this radio button is highlighted then this layer will not be displayed (DO NOT USE ON NETWORK LAYER) if used on the network layer when defects/assets are created they won’t be able to find the reference layer.
- **Show Layer** when this allows layers to be turned on and off at different zoom levels.
- **Scale >** is the max zoomed out scale and the **Scale <** is the minimum scale when the layer will be switched off.
7.5.2 Symbol

This tab is used to define the look of the lines on the map.

![Figure 41 – Layer Symbol](image.png)

**Colour** this is the main colour for the line.

**Outline Colour** if the line style has two colours then this is used for the second one.

**Style** this drop down list is used to select the line style.

**Size** the greater the number the thicker the line appears on the map.
7.5.3 Renderer

This is used to define the presentation.

Unique this will render the lines based on one of the fields within the layer for example ROA_NUMBER (Road Number), RSE_MAINT_CAT (classification), ENVIR_NAME (urban/rural) etc.

Once the required field is selected press the set button and the unique values will be displayed on the right. The individual colours can be changed by double-clicking on the colour to change and selecting from the pop up pallet. Once happy with the colour choice click the set button.

Classes a unique renderer to represent a way of classifying features into categories or classes, by drawing different symbols for features based on numeric attribute values.
7.5.4 Standard Labels

This allows text to be added to a feature on the map most commonly used for labelling OS text (house numbers, road names etc).

![Figure 43 - Labels](image)

**Text Field** Pick list from the layer. OS layers will generally have a column called text.

**Horizontal Alignment** Pick list choice. This is Left/Centre/Right of the features centre.

**Vertical Alignment** Pick list choice. This is Top/Centre/Bottom/Baseline of the features centre.

**Font** the Font to be used to display the text.

**XOffset Field** Pick list from the layer to offset the text by.

**YOffset Field** Pick list from the layer to offset the text by.

**Rotation Field** Most OS layers contain a rotation column normally called Text Angle or similar, this automatically rotates the text to be in line with the map features

**Size Field** Most OS layers contain a size column normally called Text Size or similar, this automatically sizes the text to be in line with the zoom factor of the map.

**Rotation** a manual way to rotate all the text on the map. This is a slide from 0° to 359°
Draw Features a check box to turn on and off the features being labelled. For example, you don’t need the dot feature of a house number when the house number on its own is enough.

Allow Duplicates if a feature is labelled multiple times, if this box is unchecked it will only display one of them.

Splined Text The text will be rotated to 'fit' the linework of a feature (such as a road).

Flip The text will be flipped through 180°

Set Button Once a feature has been changed then press the set button to set it for that layer, then the Apply button to apply the changes.

Apply used after the set button to apply changes.

7.5.5 Coordinate System

All UK sites will typically use the British National Grid as shown above for their map references.
8 Using GPS

MapCapture is capable of receiving a signal stream from a GPS receiver. This will enable the MapCapture screen to continuously centre itself on the current location, eliminating the need for the inspector to manually locate his position on the map before logging an inspection or collecting an asset.

Any GPS, either built-in to the DCD device or external, will pass data through a Windows ‘port’ (note that for the avoidance of confusion, these are not firewall ports!). MapCapture contains a GPS listener which can be set to accept a GPS signal through a specified port.

8.1 Configuring MapCapture’s GPS listener

In the main MapCapture screen, ensure that the [GPS] button is selected.

The first time this is selected for each session it will bring up the ‘MapCapture GPS Settings’ dialog. If the GPS receiver is already connected and configured, you will see the stream of GPS data in the ‘GPS Stream’ tab.
To configure the GPS listener, select the CommPort → Properties menu.

![Map Capture - [Cheltenham.mc4]](image)

**Figure 46 – CommPort Properties**

Set the Port field to the port your GPS uses.

Most of the other settings should be able to be left as is but if your GPS receiver requires them to be set then do so.

When you’ve completed the settings, press [OK].

The GPS listener within MapCapture is now configured and should be receiving data. This can be validated by looking at the ‘GPS Stream’ tab.
## 9 Image Catalogues (Schema File and Catalogue file)

Use of image catalogues is essential for most users. It allows the adding of multiple ‘maps’ to the project as one file rather than multiples.

### 9.1 First Step

Create the schema file. Text catalogues require a file with parser information named schema.ini. The contents of the file must be:

```ini
[Catalog.txt]
ColNameHeader=True
Format=Delimited(,)
MaxScanRows=0
CharacterSet=OEM
Col1=IMAGE char
Col2=XMIN Long
Col3=YMIN Long
Col4=XMAX Long
Col5=YMAX Long
```

**Sample:**

```ini
[Catalog.txt]
ColNameHeader=True
Format=Delimited(,)
MaxScanRows=0
CharacterSet=OEM
Col1=IMAGE char
Col2=XMIN Long
Col3=YMIN Long
Col4=XMAX Long
Col5=YMAX Long
```

<table>
<thead>
<tr>
<th>[Catalog.txt]</th>
<th>The file name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ColNameHeader=True</td>
<td>First row in catalog.txt contains headers</td>
</tr>
<tr>
<td>Format=Delimited(,)</td>
<td>Delimiter is the comma character</td>
</tr>
<tr>
<td>MaxScanRows=0</td>
<td>Leave as is</td>
</tr>
<tr>
<td>CharacterSet=OEM</td>
<td>Character set (leave to OEM)</td>
</tr>
<tr>
<td>Col1=IMAGE char</td>
<td>1st Column name and type</td>
</tr>
<tr>
<td>Col2=XMIN Long</td>
<td>2nd Column name and type</td>
</tr>
<tr>
<td>Col3=YMIN Long</td>
<td>3rd Column name and type</td>
</tr>
<tr>
<td>Col4=XMAX Long</td>
<td>4th Column name and type</td>
</tr>
<tr>
<td>Col5=YMAX Long</td>
<td>5th Column name and type</td>
</tr>
</tbody>
</table>
9.2 Second Step

Create the image catalogue definition file by populating the attributes described in the schema.ini file.
The sample file “catalog.txt” is as follows:

"IMAGE", "XMIN", "YMIN", "XMAX", "YMAX"
"E:\EXOR\Development\MCP_4X\NewMCP\Maps\colour50k\SP60.TIF", 460000, 200000, 480000, 220000
"E:\EXOR\Development\MCP_4X\NewMCP\Maps\colour50k\SP40.TIF", 440000, 200000, 460000, 220000
"E:\EXOR\Development\MCP_4X\NewMCP\Maps\colour50k\SP20.TIF", 420000, 200000, 440000, 220000

Notice that strings are in double quotes.
Image attribute describes the full file name of the image. The next 4 attributes define the extent of the image.
If extents are presented in double precision values then the type definitions of the columns should change accordingly (from long to double).
10 Using eB Document Manager

Please read related documentation for end-to-end configuration of the system to work with the new eB Document Manager. This section describes the details of the client side implementation.

10.1 Prerequisites

eB Document Manager Bulk Loader requires an .xlsx (MS 8.0 Excel enhanced file) to load the associated photographs. This requires that the "2007 Office System Driver: Data Connectivity Components" shall be available at the client system. Details on how to download and install the "2007 Office System Driver: Data Connectivity Components" can be found at Microsoft's Download Center.

Note: It's not required that Office 2007 is installed on the client device.

10.2 New Application Parameters

Two new parameters have been introduced in Map Capture to control the provided functionality.

"Target eB Class" parameter shall contain the ID of the Type used to represent the attachments associated with a Defect/Asset. For more information consult the related eB Document Manager literature.

"Use eB Bulk Loader" parameter shall be true when Map Capture shall be used with eB Document Manager and the new file formats shall be used. Setting this parameter to false restores the functionality to the standard exor RMMS Detailed Inspections file format. If this product option is set but the "2007 Office System Driver: Data Connectivity Components" is not installed, then MCP will display an error message to the user when performing the export (see also Prerequisites in this section).
10.3 Export changes

When "Use eB Bulk loader" is set to true Map Capture will generate the required files under a sub-folder in the predefined Export folder.

The sub folder is generated in the same folder as the standard export file and follows a similar naming convention.

**Note:** The naming convention for the sub folder containing the attachments and the eb Bulk Loader file is PICS-YYMMDDHHmm where

YY: the last two digits of the Year at the date of export
MM: the month at the date of export in two digits format
DD: the month at the date of export in two digits format
HH: the hour at the time of export in two digits format
mm: the minutes at the time of export in two digits format.

The naming convention of the eb Bulk Loader file is EB_<YYMMDDHHnn>.xlsx

The naming convention of the attached files is <DEV><ADM>YYMMDDHHnn.<ext> where:

DEV: is the device id defined in the application parameters
ADM: the User associated Admin Unit
YYMMDDHHnn: as described above
<ext>: the file extension (in the example jpg).

**Note:** It's essential that Device Id is unique when configuring the system.