C-ISG-A.56 Managing iShare GIS 5.6

An Astun Technology iShare Course

Code	C-ISG-A
Title	Managing iShare GIS
Description	Covers all aspects of iShare GIS administration.
Required Software	iShare GIS 5.6.0
Target Audience	iShare Administrators
Pre-requisites	None
Duration	1 day
Version	1.0
Updated	09 Dec 2016
Updated by	Antony Scott
Status	Complete

Introduction

This course is designed to introduce administrators to iShare GIS, including:

- an overview of the application and its architecture
- management and administration tasks
- troubleshooting and debugging

Prerequisites

Delegates should have:

- access to an installed and configured instance of iShare GIS
- access to the Astun training instance

*An Astun Technology iShare Training Module*

Code	ISG-1
Title	iShare GIS for Users
Description	Covers the web interface. Required for Administrators, can also be used by customers to train end users.
Required Software	iShare GIS 5.4.8 or later
Target Audience	iShare GIS users
Pre-requisites	None
Duration	.5 day
Version	1.0
Updated	24 Aug 2015
Updated by	Antony Scott
Status	Complete

1. Introduction

This module is aimed at end users of iShare GIS. It will demonstrate what you can see and do within the iShare GIS web application.

The URL for the application on Astun's standard training instances is http://ishare01/iShareGIS.Web/iShare GIS.aspx. A bookmark for the URL can be found in Firefox > iShareGIS bookmark folder.

Note: It is recommended that you use Firefox for these exercises. Some exercises (e.g. editing) will not work in this version in Internet Explorer.
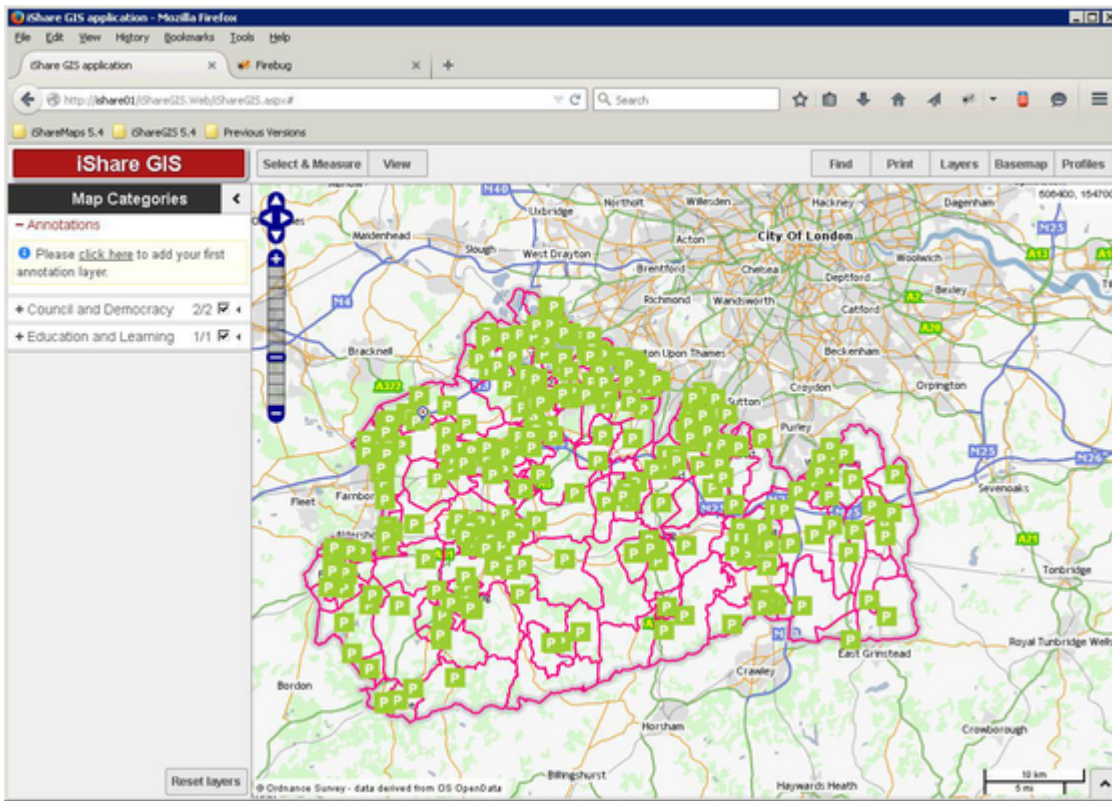
2. Basic Functionality

2.1. Using the Navigation Tool
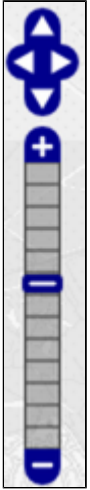
The Navigation Tool zooms and scrolls by pre set units.

Have a go at moving around the map and zooming in and out.

There are also various mouse and keyboard shortcuts, for example:

- If you hold down the shift key you will be able to perform a marquee selection: click and drag to draw a rectangle to zoom into a particular area of the map.
- You can use the scroll bar on your mouse to zoom in and out.
- You can use the arrows on your keyboard to move around the map.

2.2. Collapsible docked windows

If you have a look at the interface you will see a small arrow to the right of the **Map Categories** heading, and another at the bottom right hand side of the application window.

These can be used to Show or Hide the various windows to leave you with a smaller or larger Map window.

If you select the one at the bottom right hand side of the screen, it will display the Information Browser, but as we have not yet specified any information, it will not display any results for now.

3. The Application Bar

| Select & Measure | View | | Find | Print | Layers | Basemap | Profiles |
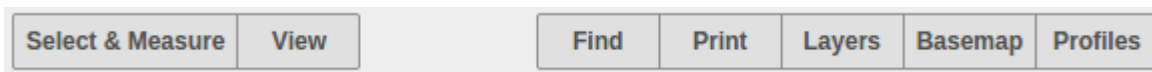
The buttons on the Application Bar allow the map tools that are frequently used to be shown all the time. Click on a button to display a quick dialog, such as a drop-down selection with further buttons or links, or a full dialog for entering or selecting details.

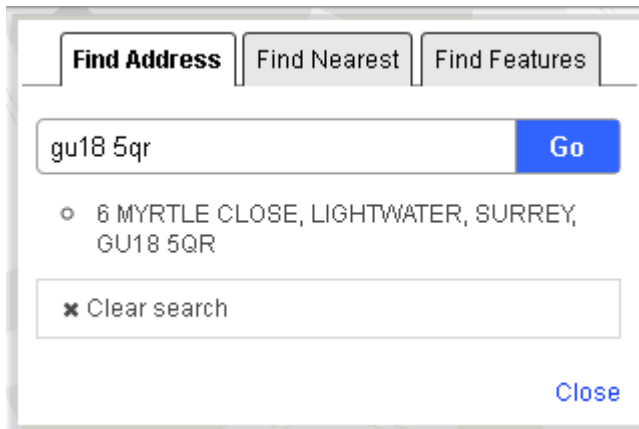# 4. The Find button

The **Find** button will normally have a **Find Address** tab, and a **Find Nearest** or **Find Features** if these options have been configured.

4.1. Using Find Address

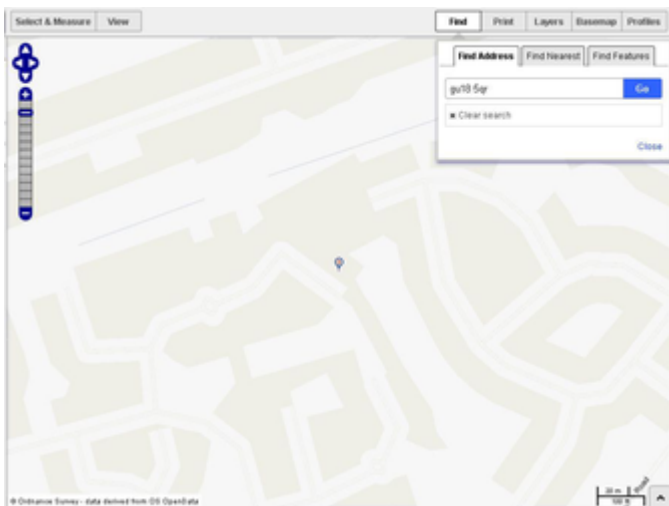Let's use the **Find** button to find a specific address.
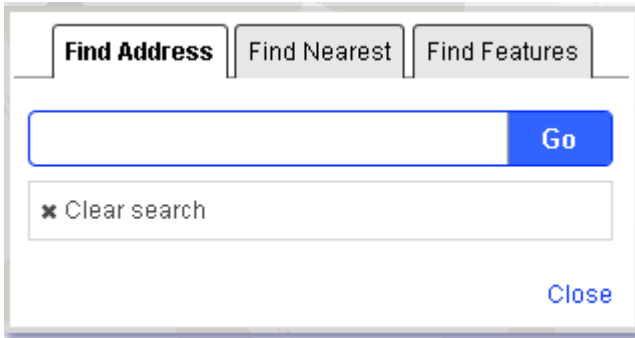
- With the **Find Address** tab selected enter "GU18 5QR" into the box and click Go.

Here you can see that one result has been returned.

- Select the entry, and the map will zoom to the address, which will be highlighted with a pin; you will also find that it zooms in as shown in the following screenshot.

4.2. Using Find Nearest

Find Nearest is used to find the features from the layers you have loaded which are nearest to the selected location.

- Make sure you are in the Workshop Maps Profile. Select the **Find > Find Nearest** tab.

The first drop down list displays all the layers that have been configured to use **Find Nearest** functionality. The second list allows you to select the maximum number of results that you wish to be returned, and the third list sets the distance from your chosen location within which the search will be carried out.

- Select Primary Schools from the top list, Two results from the second, and 1 mile from the third and click **Go**.
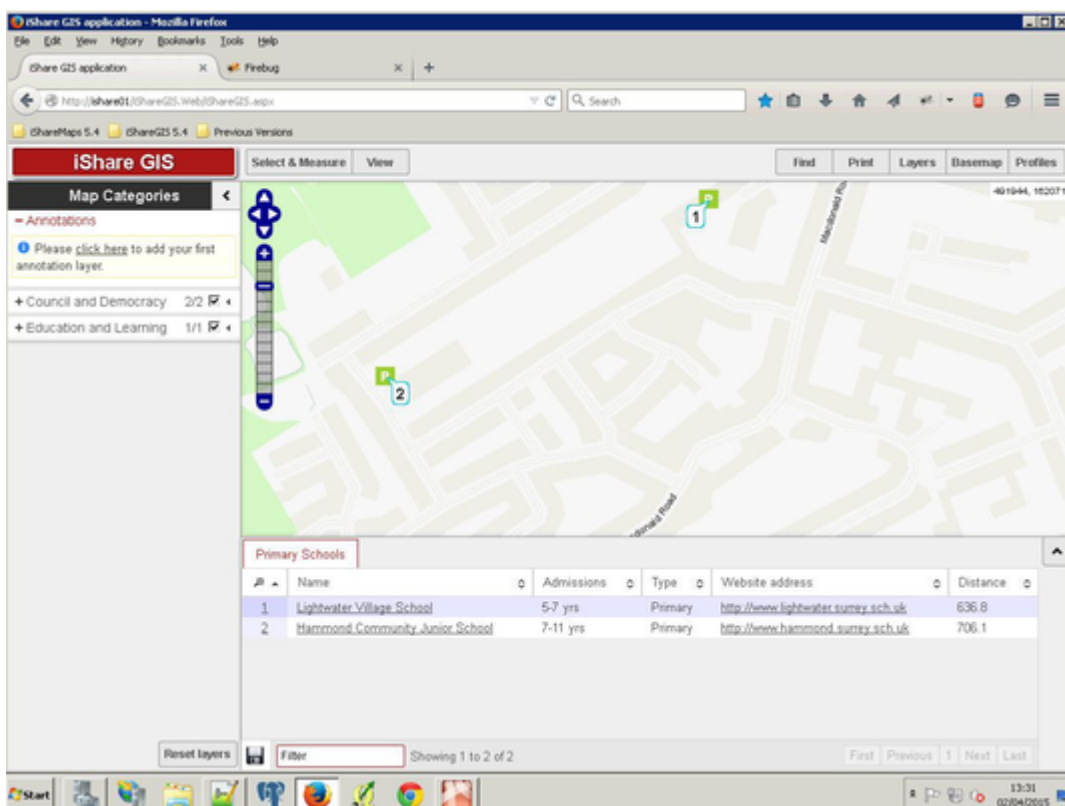
The two nearest Primary Schools are shown on the map, and the Information Browser opens, displaying details of the results with reference numbers corresponding to the map locations, numbered by distance from the selected location. The first few results are shown, with a Next button to display more if required. A t the same time, the Primary Schools layer is automatically switched on in the map.

- To clear your results click the **Clear search results** button on the **Find Nearest** dialog.

The numbers will be removed from the map and the results cleared from the Information Browser but the Primary Schools layer will remain visible.

4.3. Using Find Features

Find Features allows you to search for features by entering all or part of their name.

- Select the **Find > Find Features** tab

- Select **Primary Schools** from the drop-down list
- Enter all or part of the name of the Primary School you want to find (if necessary, go back to the previous step to select a search string. For this workshop you can use 'lightwater'.)
- Click **Go**
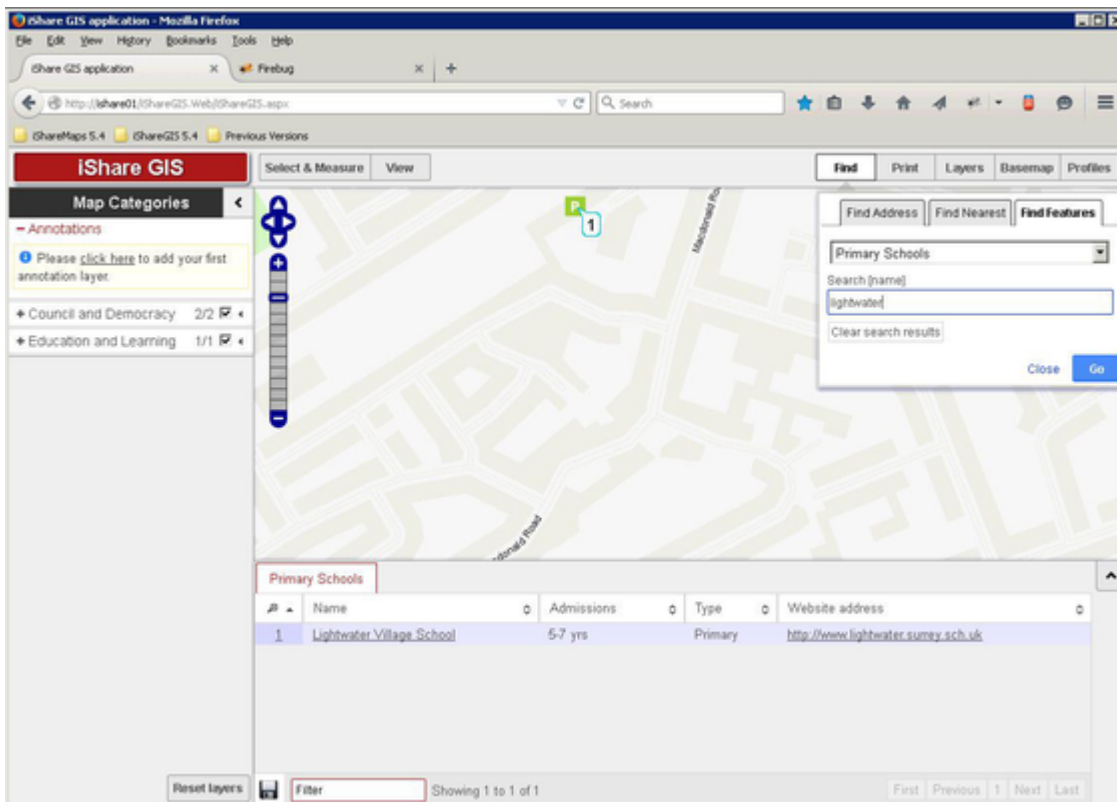
The features which match your search are shown on the map, in the same way as in **Find Features** in the previous step.

When you have finished searching just click on **Close** to close the Find dialog.

5. The Basemap button

This button is displayed if you have configured more than one base map layer. In the Workshop data we can switch between several base maps. A base map is the underlying map that is displayed as background to the layers that can be switched on and off using the Map Categories window. Only one base map can be shown at a time, and typical base maps include Aerial Photography, OS MasterMap, and OS Open.

- Click on the **Basemap** button.

The currently selected **Basemap** layer is the one in black (OS OpenData in the above example), with the other available base maps shown in blue.

- Click on any of the other links to show a different base map.

6. The Profiles button

If you have access to more than one map source in Studio, you will see a **Profiles** button in the Application Bar. This allows the user to switch between different map sources. In our Workshop environment we have several profiles.

- Click on the **Profiles** button
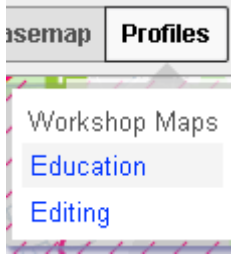
The currently selected profile is shown in black (Workshop Maps in the above example), with other available profiles in blue.

- Select the Education profile.

As this is the first time that the Education profile has been selected, there are no layers selected in the Map Categories window.

Layers are added either by selecting the Layers button, or by clicking on layer catalogue link under No layers selected in the Map Categories window.

7. The Layers button

The Layers button will display the Layer Catalogue, showing the list of layers are available to include in your map.

As we have selected the Education profile, you will see the Layer Groups that have been configured for the Education map source.

- Click on the plus sign beside each of the Layer Groups (Council and Democracy and Education and Learning).

Now you can see the Layers that have been configured for each Layer Group.

You can either select an individual Layer or, if you click in the box for the Layer Group, all Layers for that Layer Group.

- For this exercise select both the Layer Groups, as shown in the following screenshot.
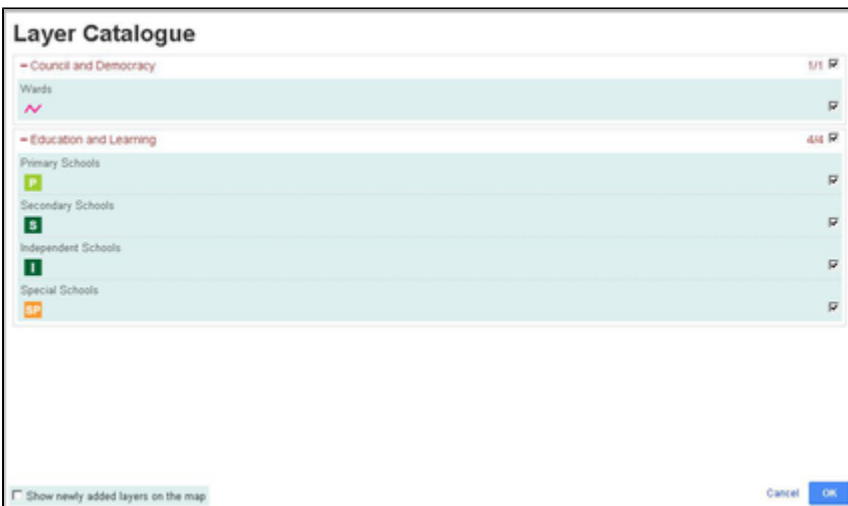
If you want the newly added layers to be displayed on the map, click the Show newly added layers on the map check box at the bottom left of the dialogue.

- For this exercise we won't tick this box, simply click OK to add the layers to the Map Categories window

8. Map Categories

Once layers have been made available using the Layers button, you will see them as being available for selection.

- In the Map Categories window, click on the plus sign beside the Council and Democracy and Education and Learning Layer Groups
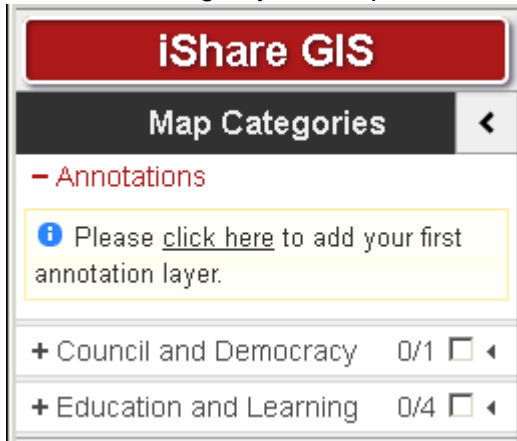
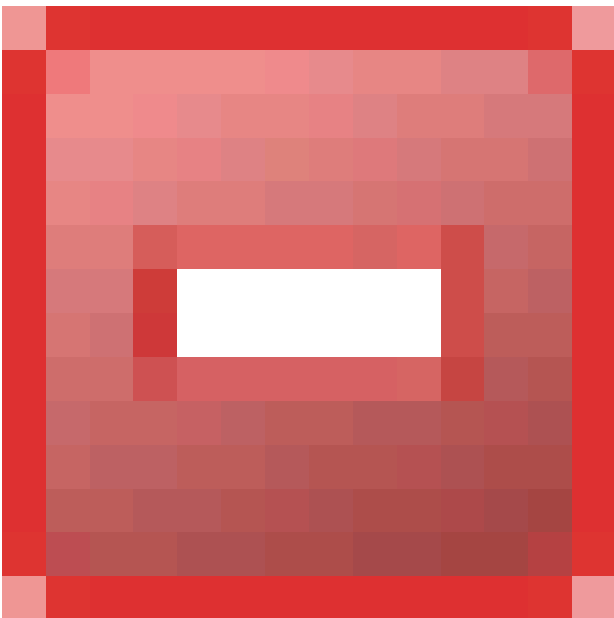
The available individual layers for the Layer Group are listed.

- Click on the small arrow beside the Primary Schools layer.

This displays the Actions available for the Layer (you can also do this for a Layer Group)

Depending upon how the layer has been configured, you will see one or more of the following Actions icons :

 or

	Remove Layer (or Layer Group) from list
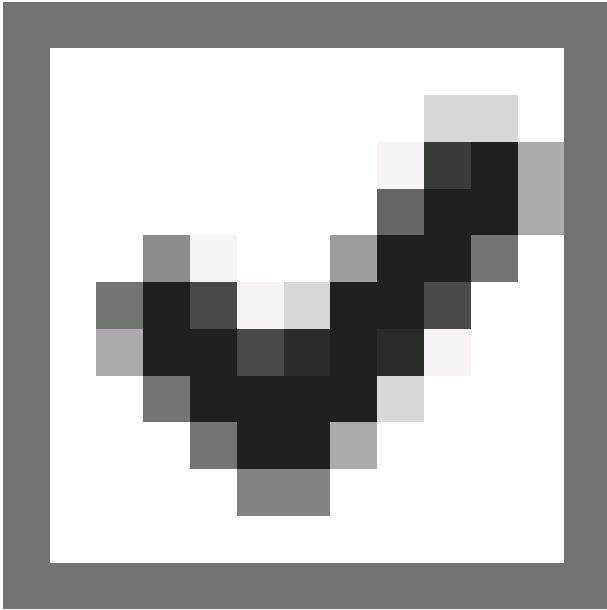
	Check to show results for the layer (for example you may want to display the layer on the map but not return results when selecting or searching)
	Find Nearest (equivalent to using the Find > Find Nearest dialogue)
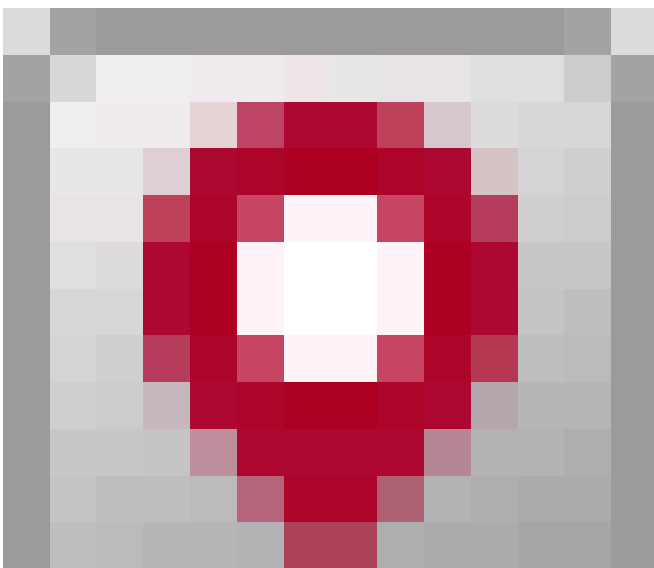
Display the Metadata for the Layer

Edit the Filters for a Layer

	Remove all filters from the Layer
	Edit the Features of the Layer

- Check the box beside the Council and Democracy Layer Group and zoom out a little
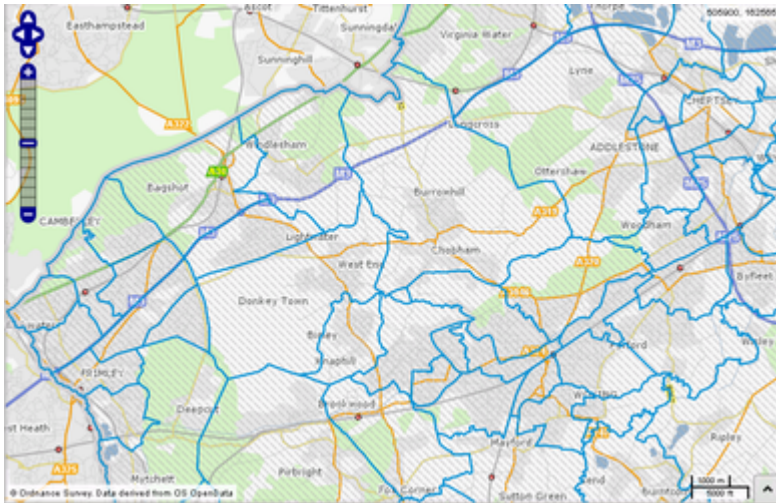
The Wards are displayed on the map with blue boundaries. Notice also that the Map Categories window now includes a legend for each displayed layer.
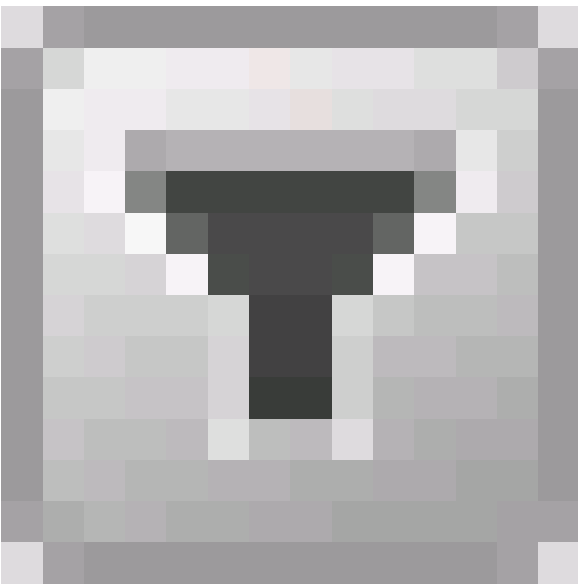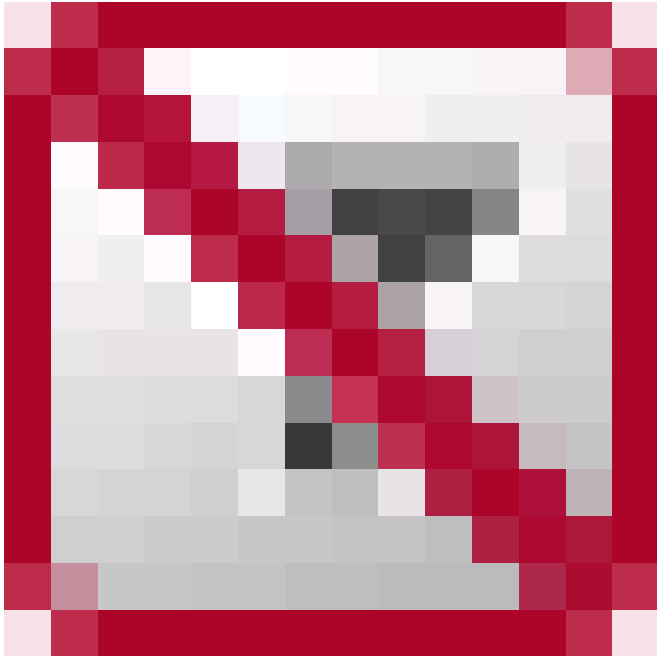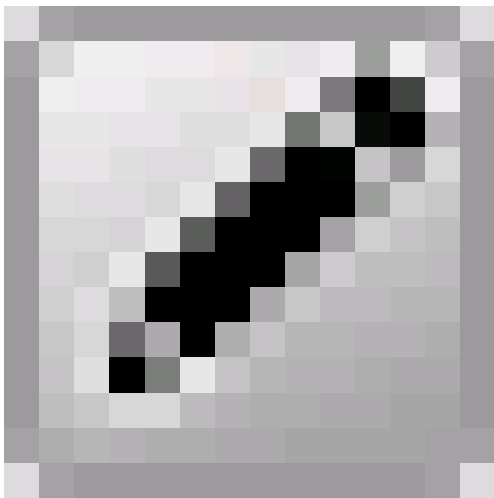
- Click on the map inside any one of the Ward boundaries.
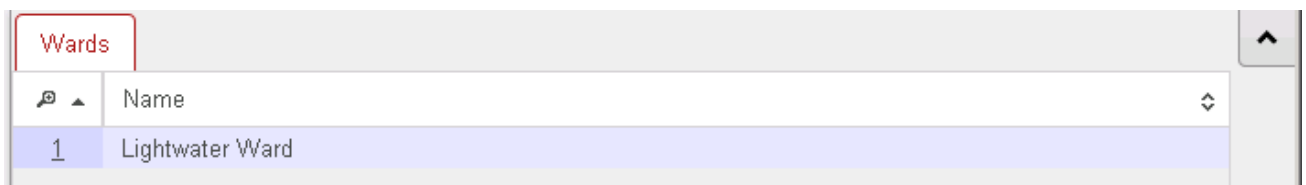
The Ward name is displayed in the Information Browser.

- Check the box beside the Education and Learning Layer Group

All the schools layers are displayed on the map.

- Now click on one of the school icons
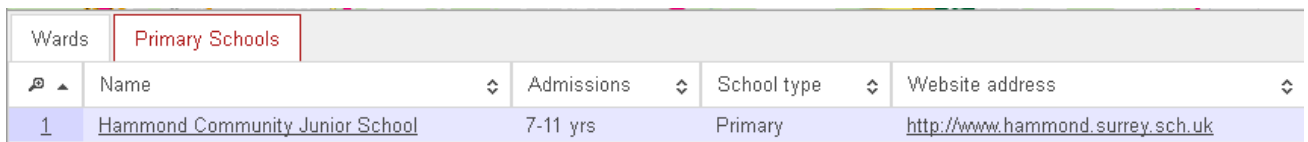
The name and details of the school are shown in the Information Browser. In the Wards tab, the name of the Ward in which the school is located is now shown. This is because when you click on the map, all open layers are queried, and the results for each layer shown in that layer's tab.

9. The Information Browser

As you have seen, the Information Browser shows details of the features selected in the map. An explanation of of the different parts of the Information Browser window is below, with the numbers corresponding to the red number in the screenshot.

1. The Tabs show the layers which included features in the defined selection area
2. The Filter field allows you to filter the features in the current tab by entering a string, which searches all fields
3. The Save button allows you to save the data in the currently-displayed selected tab to either a Comma Separated Values (CSV) text file or Microsoft Excel (XLS) format
4. The Pagination buttons allow you to navigate to more features if they are not all shown on the tabs
5. The Popup No matches the number shown on the map for the feature
6. The Sort sequence button sorts the features by the column selected
7. The Show / Hide arrows open and close the Information Browser

Note: You will be able to create filters using selected geographical areas further on in this workshop, when we use the Select tools.

10. The Print button

The Print button will print your current map, either as a PDF file or as an image.

First prepare the map that you wish to print.

- From the Basemap button select the OS OpenData option.
- Hold down the Shift key and click and drag with the mouse to draw a marquee select area around our selected address (GU18 5QR), then click and drag to move the map so that our address is near the centre of the map.

10.1. Printing to PDF

- Now select Print > PDF from the Application Bar.
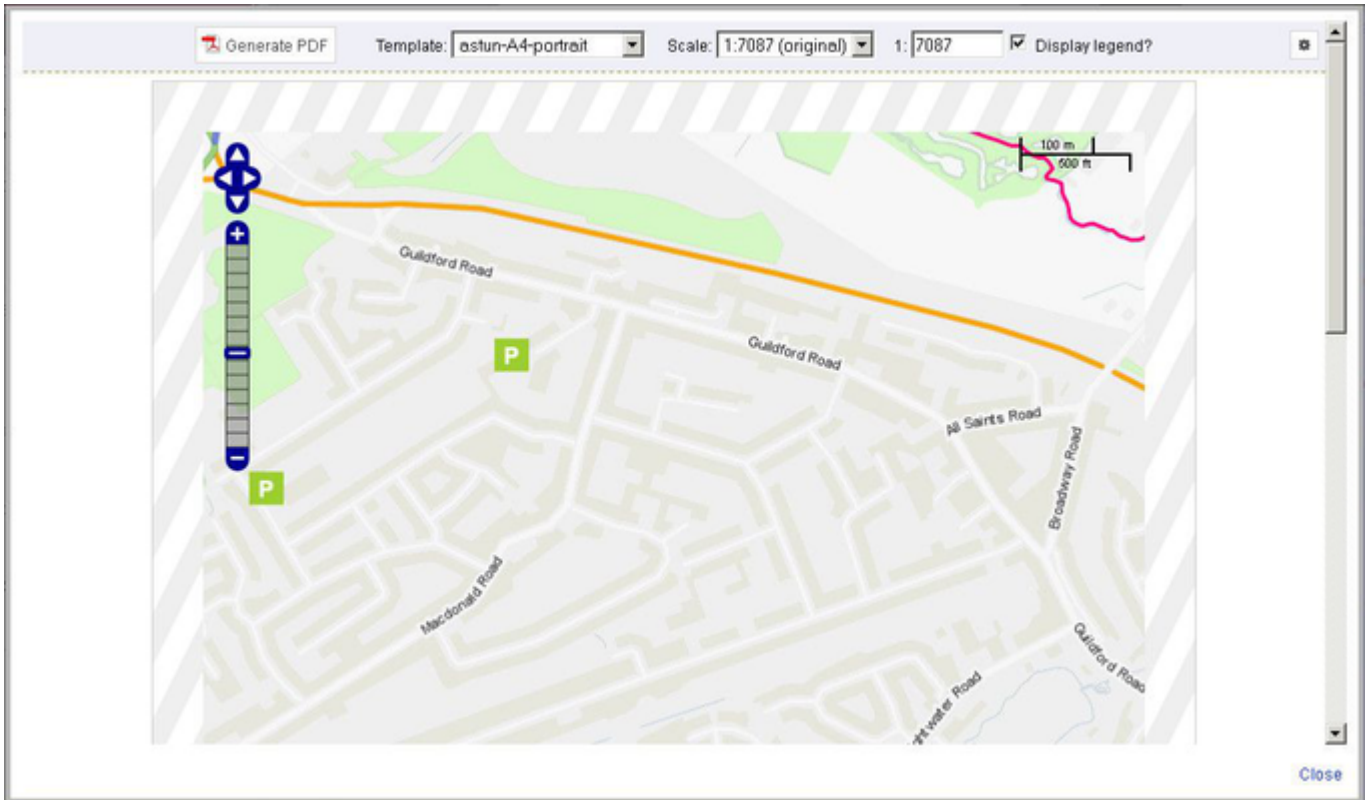
At the top of the window you can:

- Select from the list of available print Templates e.g.
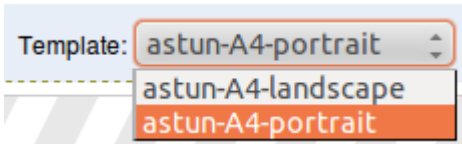
- Change the scale of the map by using the Scale dropdown or entering the scale in the field to the right of it
- Select if you wish to include the Legend by ticking Display legend?
- Change the Page Setup by clicking on the [⚙] icon at the top right of the window

In the map itself, you can:

- Use the Navigation Tool to zoom in or out, or pan to a different area of the map
- Use the mouse to navigate the map in the same way as you would in the main iShare interface

At the bottom of the window you can:

- Change the description for the page by using the text box in the bottom left hand corner
- See the legend for the currently displayed layers

- When you are happy with your layout, click the Generate PDF button at the top of the window
- Click Close on the Print window - bottom right.

For instructions on creating your own print template, refer to the Creating your own Print Template topic in the iShare online help.

10.2. Printing to Image
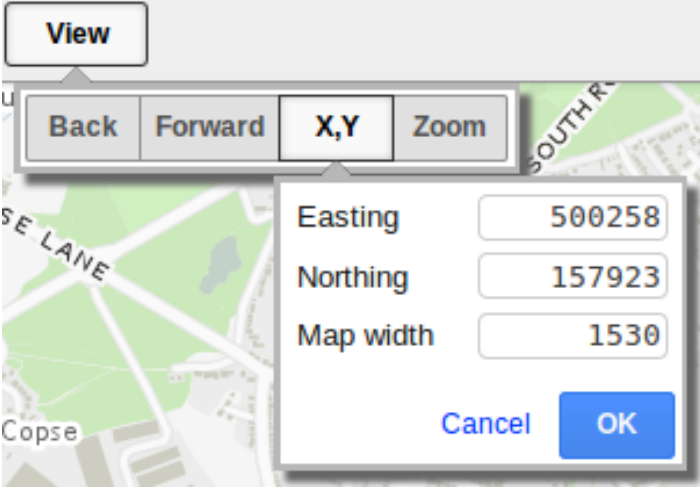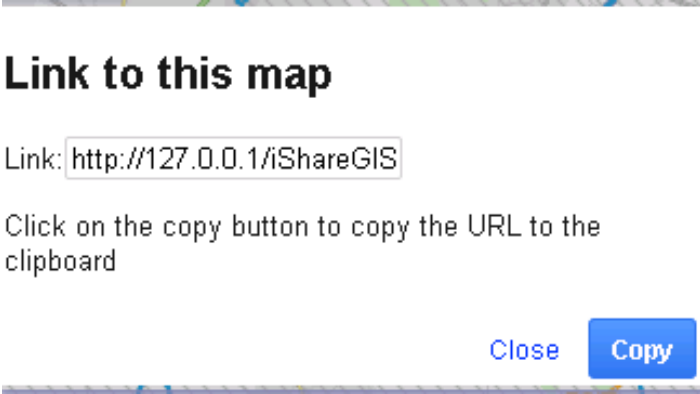
- Select Print > Image from the Application Bar
- Right-click on the image and Save Image As…
- Select a location and name for the image and click Save
- Close the window
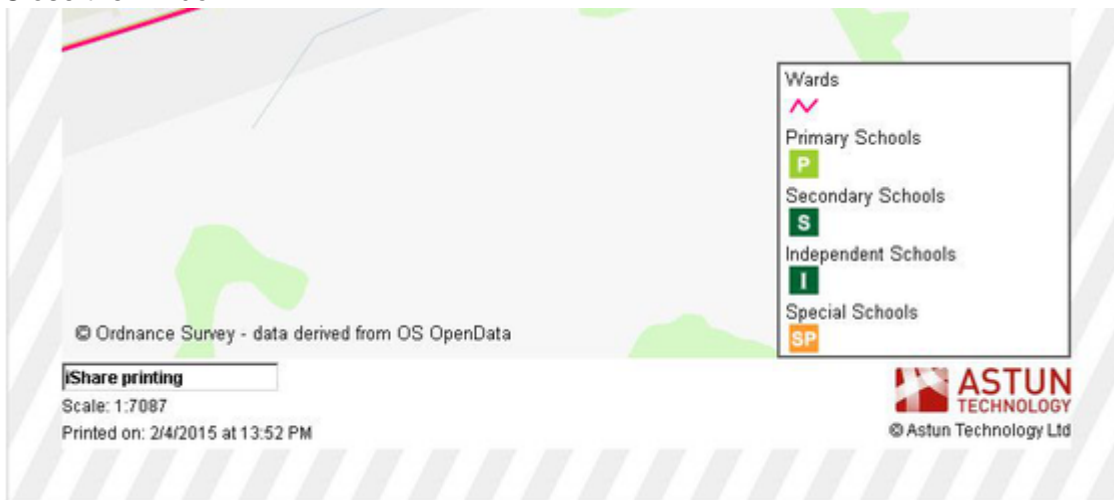
11. The View button

The View button allows you to change the view of the map displayed in the window. The options are explained in the table below. Have a play with each of the buttons.

Back	This navigates back through your view history.
Forward	Goes to the the later view of the map. This is only available if you have previously clicked Back

X,Y	Displays a dialogue window allowing you to set the Easting, Northing and Map Width
Zoom	Turns on 'marquee zoom': click and drag a zoom box to the area you want to see in the map (you can also adjust the zoom by clicking the + / - keys on the keyboard, using a mouse wheel, or using the navigation tool).
Link	Select this to display a **Link** for the current map. Now you may **Copy** the URL to pass on to someone else to open iShare GIS with the same map Layers, Zoom level, map centre etc.

12. Measuring

12.1. Measuring a distance

- Click on Select & Measure > Line in the Application Bar.
- Click once on the start location of the distance you want to measure.
- Click on any intermediate points on the track to be measured.
- Double-click on the finish point.

The distance will be displayed in a tooltip in metres and feet as you click, and when you double-click to finish.

- If you are unhappy with the positioning of any of the nodes, drag them with the mouse to move them and the distance will be re-calculated.
- Add nodes by selecting and dragging the lighter nodes which appear between the main nodes.
- You can move the entire line by selecting the 'centre' node which appears off the line, and dragging it to another location.
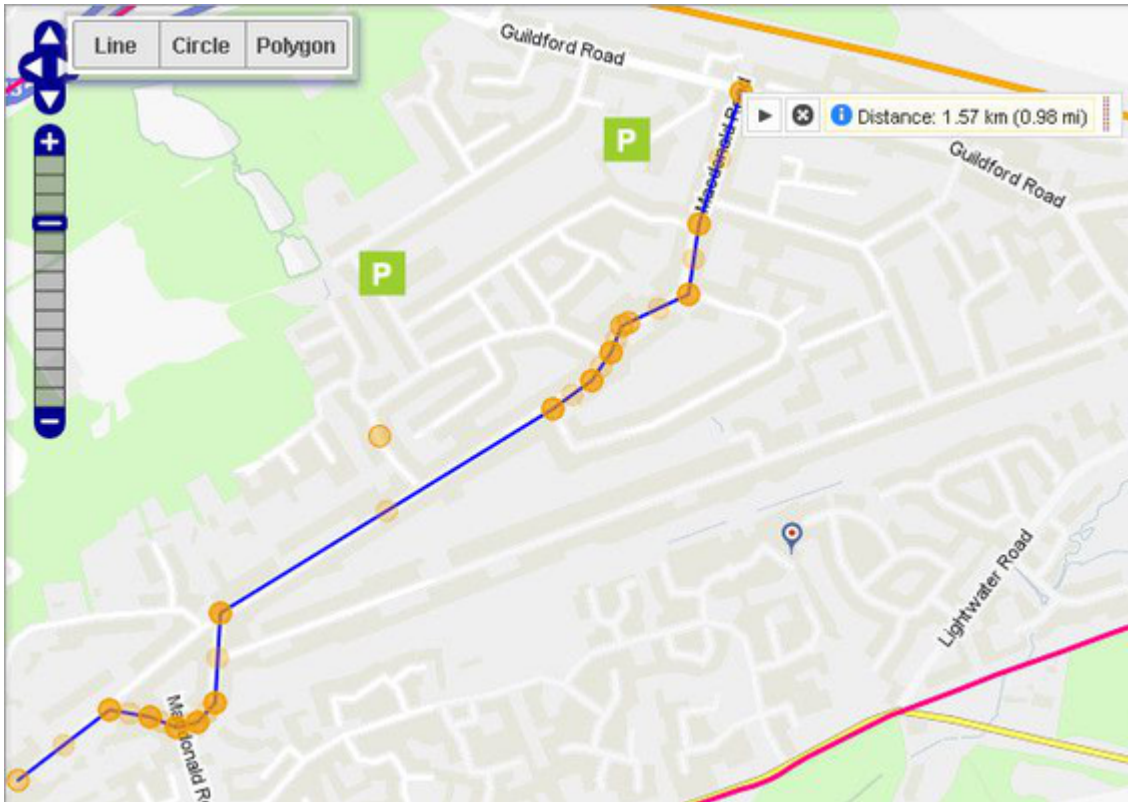
- Hover over the line or a node to see the info box showing the distance.
- Click on the Delete button [x] (or on another Select & Measure option to start a new measurement) to remove the distance results from the map.

12.2. Calculating an area

- Click on Select & Measure > Polygon in the Application Bar.
- Click points on the map to build an enclosed area (for example the four corners of a house), and double-click to finish.
- As with the line tool, you can move nodes, add new nodes and move the entire polygon.
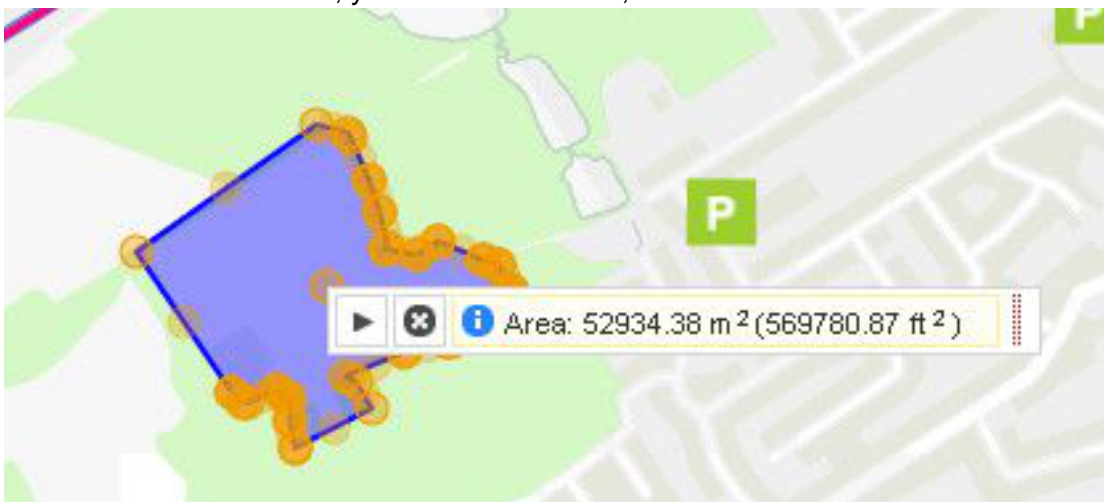
- To draw a freehand polygon, click on Select & Measure > Polygon, click points on the map to build an enclosed area - for example the corners of a property extent to select features within. Double click to finish.
- Click on the Delete button [x] (or start a new area) to remove the area from the map.

13. Making a spatial selection

The Select & Measure tool allows you to select features from the map to be displayed in the Information Browser window by drawing Lines, Circles or Polygons. The results can be filtered and exported in the usual way. Note that these tools will select all features from all visible selectable layers, so ensure that only those which you are interested in are turned on.

13.1. Using the Circle tool

Let's go back to the Workshop Maps profile.

- Select Workshop Maps from the Profiles button.

The available Layer Groups and layers in the Map Categories window changes.

- Now turn on the Education and Learning and Council and Democracy Layer Groups by clicking in the box beside the relevant Layer Group in the Map Categories window.

The Wards and Primary Schools layers will be displayed in the map window.

- Zoom out the map until you can see several schools displayed.
- Click Select & Measure > Circle, then click and drag on the map create a circle, starting where you want middle to be, until the circle is the radius that you require, then let go of the mouse button.
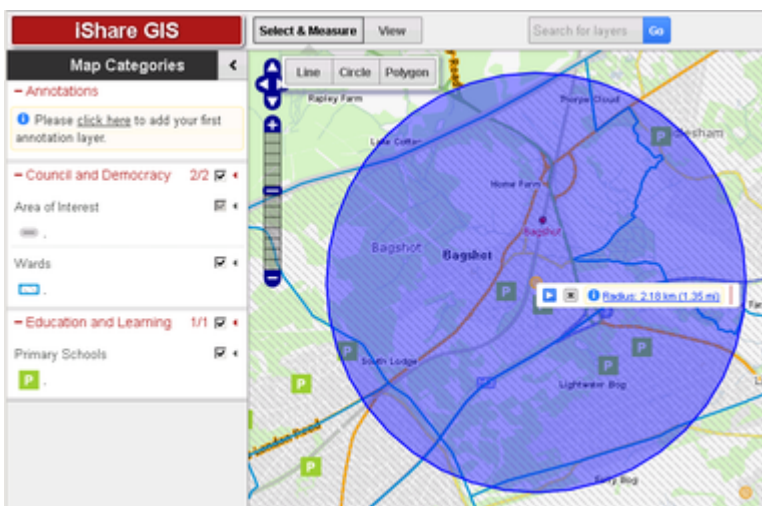
- To manually set the radius of the circle, click on the link in the info box which displays the radius (if the link is not showing, click on the small information icon).
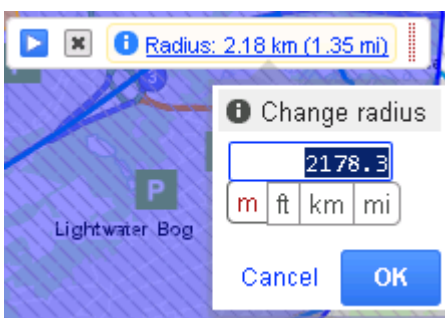
- To move the circle, click and drag on the node at the middle of the circle.
- To show the features within your circle in the Information Browser, click on the Play button in the info box.

- You can filter your results further in the usual way by using the box at the bottom of the Information Browser

- To export your results, click the **Save** icon, pick your preferred output (CSV or Excel), and click **OK**.

- If the Layer is an OGC Layer then a "Filter the layer with these results" button will also be displayed. Click on the button and this will automatically create a **Spatial Filter** for the layer.

- Delete your selection by clicking on the .

13.2. Using the Polygon tool

Create an area for selection in a similar way to the way you did when measuring an area, using **Select & Measure > Polygon** to draw a polygon on the map, double-clicking to finish. The same functions will be available as for **Circle > Select**.

- Draw a polygon, and display the results as you did for the previous exercise.
- When you have finished, delete your selection by clicking on the x.

14. Filtering Features in a Layer

Standard OGC layers (not classic layers) can be filtered by the user to show only a subset of the features. In this example we will filter the **Street Crimes** layer so that only certain crimes are shown. The layer can be found in the Police.uk Layer Group in the Workshop Maps profile. We will filter on the crime type so that we display only "vehicle crime". Use the Edit Filters tool to bring up the filter dialog.
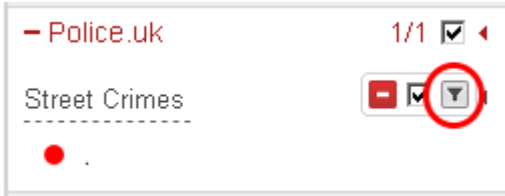
Then, enter the required criteria:

The map window is redrawn to reflect the filtered view. Inspect a few of the objects by info click or select by area.

You will notice that the Street Crimes layer is now underlined with a dotted line. This is to show that this layer has been filtered. If you hover over the Layer name the filter will be displayed e.g.
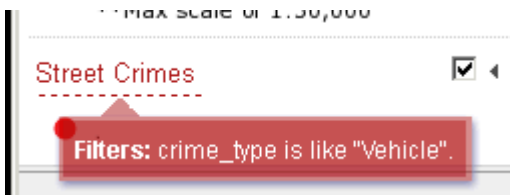
15. Annotation Layers

Sometimes referred to as 'red lining', this enables users to annotate a map with lines, polygons, points and text. The annotations are stored by iShare GIS and are displayed in their own layer over the top of all others. This annotation layer is persistent; if the user loads iShare GIS at a different time or in a different browser, then all annotations previously created will be visible.

Layer annotations require a user be authenticated. This is so that the annotation can be stored by iShare GIS against the user's authenticated name. Annotations are not stored in cookies, and if the user is unauthenticated (i.e. the web application is being used anonymously) then the annotations will not be available.

Users can create different annotation layers, and choose to keep them private or share them with other users.

Any annotation layers that you have created, or to which you have been given permission, will be displayed in Map Categories and the Layer Catalogue.

15.1. Create a New Annotation Layer

If you have not created any annotation layers, or none have been shared for your use, there will be a message under Annotations with a link to adding your first layer.
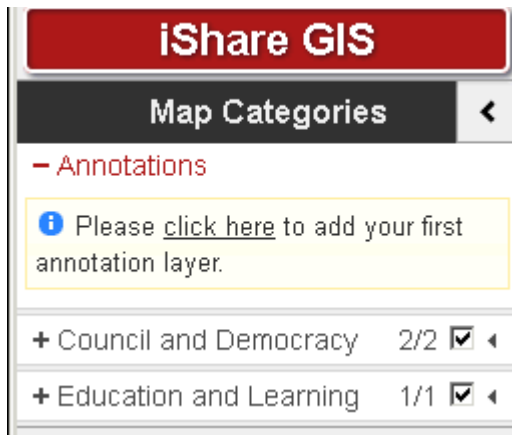
Once you have added an Annotation layer then you can use the New layer link to create any further layers.

- Click on the click here link to add your first annotation layer.

The properties dialogue for the new layer is displayed.

- Give the annotation layer a Name by typing in the box at the top.

Now define the default styling for each geometry type you are going to be using in your layer. It is quicker to do this before adding layers, otherwise the default styling will be used.

- Click on the Polygons button.
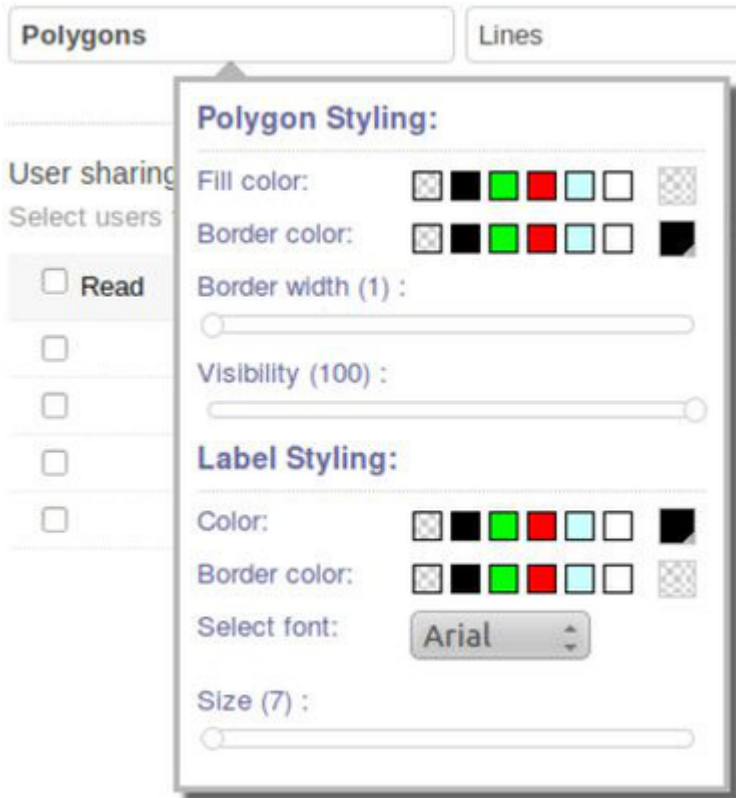
- Pick the defaults that you would like to use for any polygons in your annotation layer.
- For colours, either pick a colour from one of the preset colours, or click on the right-hand entry for a larger selection or hex specification.

The colour you have chosen will be shown on the right.

- Where there is a slider control, drag it to change the value.
- When you have finished, click outside the dialogue to close it.

- Now do the same with Lines, Points and Text. For points, you can pick from a number of preset symbols.

The Properties dialogue also allow you to define user sharing for your annotation layer. You can choose whether you want users to view (Read) the layer, or to edit (Write) the layer as well.

To give all the users in the list permissions, check the boxes beside the words Read and Write. To give selected users permission, check the boxes beside individual users.

Note: You will not be able to tick the Write box unless you have ticked the Read box.

- Decide what permissions you wish to set for your layer.
- Once you are happy with the properties you have set, click OK to update (or click Cancel to return without updating).

To return to the properties dialogue, click on the Actions button (the triangle to the right of the name) for

your layer [icon] and click [icon] to display the dialogue.

To delete the layer, click [icon] from the Actions button.

15.2. Adding Features to your Annotation Layer

Once you have set the defaults for your new annotation layer, you can add the required features. This is done by selecting the appropriate tool from the toolbar.

The tools are as follows:

	Draw a line
	Draw a polygon
	Draw a circle
	Add a point
T	Add text
	Select an existing feature from the Layer

- Select to add a Line feature.
- Click on the map to start the line, then move the mouse and click to change direction, double-clicking to finish.

The editing toolbar will be displayed for you to save, name, and define the properties of the line. Note that the line will by default have the properties defined in the previous step.
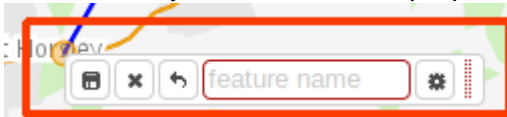
- For now, give your line feature a Name and click the Save icon.
- Now add a Polygon. Select the Polygon button and click on the map to set the first node, then keep clicking define the shape, double-clicking to finish.

Once again the editing toolbar will be displayed.

- Give the polygon a Name and click Save.
- Add a Circle feature and some Points.
- Select the Text button, and click where you want the text to appear.

A line will appear, which you can reshape as you would a line feature - this means that your text can be curved, or follow an existing feature such as a road.

- Add text in the box in the editing toolbar, then click Save.

15.3. Editing Annotation Features

To change the properties, shape, or position of an annotation feature, select it using the Select tool from the toolbar.

- Select the feature that you wish to edit.

The editing toolbar will be displayed, where you can change the name of the feature, delete it, or change the styling.

To reshape a feature, hover over a node and drag it to a new location. To move the entire feature, hover over the centre node and drag it.

- Have a go at reshaping your feature, and changing some of its properties.

Code	IS-1.56
Title	iShare for Administrators
Description	Covers all aspects of iShare administration. Topics specific to iShare Maps or GIS are contained in a separate modules, to be added to this one depending on requirements.
Required Software	iShare GIS 5.6.16 or iShare Maps 5.6.16
Target Audience	iShare Administrators
Pre-requisites	None
Duration	.5 day
Version	1.0
Updated	06 Oct 2017
Updated by	Andrew Bailey
Status	Complete

1. Introduction to iShare

iShare comprises a number of components, including some open source GIS packages. The diagram below represents the iShare architecture.
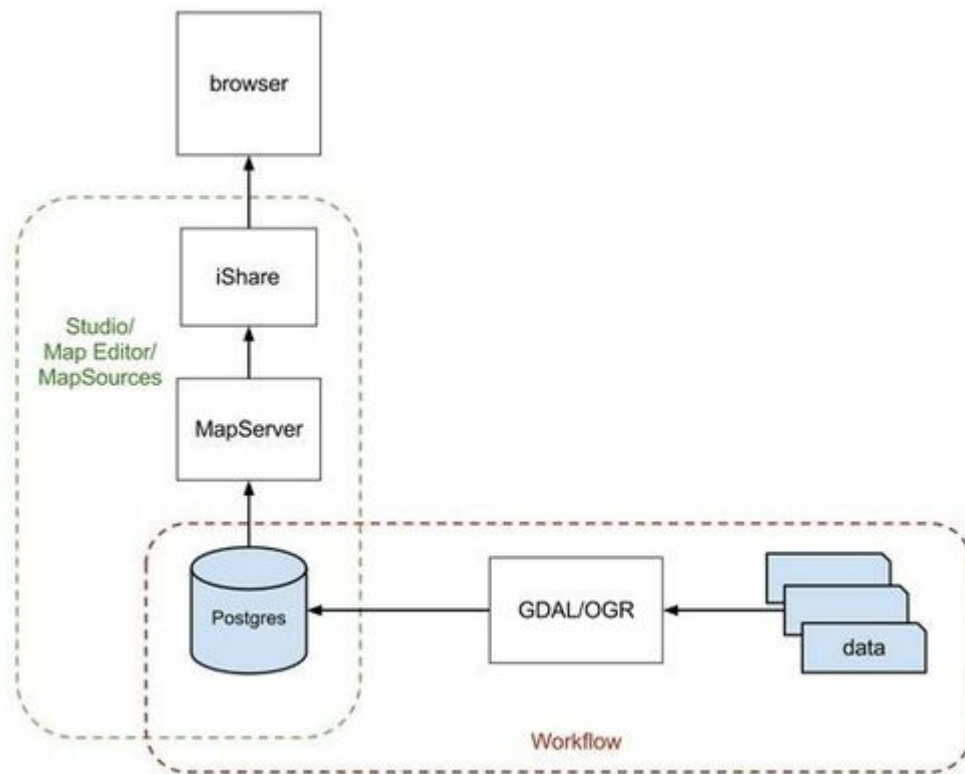
1.1. Software Components

For iShare to display maps, retrieve information and run spatial queries against features the following stack of open source software is used.

- PostgreSQL/PostGIS - a database to hold spatial and non-spatial data.
- MapServer - to generate map images and respond to information requests on a given location.
- GDAL/OGR - to pipe data from a series of formats into PostgreSQL via Spatial Data Transformation tasks.
- TileCache - to generate base mapping caches.

PostgreSQL / PostGIS

- PostgreSQL is an object-relational database (http://www.postgresql.org/)

- PostGIS is a spatial database extender for PostgreSQL. It adds support for geographic objects allowing location queries to be run in SQL (http://postgis.net/)

- PGAdmin is the PostgreSQL/PostGIS Administration GUI (http://www.pgadmin.org/)

OGR/GDAL

- GDAL is a translator library for raster geospatial data (http://www.gdal.org/) e.g. transforming aerial photography from ECW format to geoTIF format.
- OGR is a translator library for vector geospatial data. This is used to bring import data into the iShare database e.g. importing council parking zones held in MapInfo or SDE to Postgresql. This removes dependency on external systems.

MapServer

- MapServer is used to render base maps and overlays http://mapserver.org/
- MapServer .MAP file documentation http://mapserver.org/mapfile/index.html
- Astun Mapserver Styling Guide https://astuntech.atlassian.net/wiki/display/ISHAREHELP

1.2. Physical Architecture

The diagram below shows a typical iShare installation.
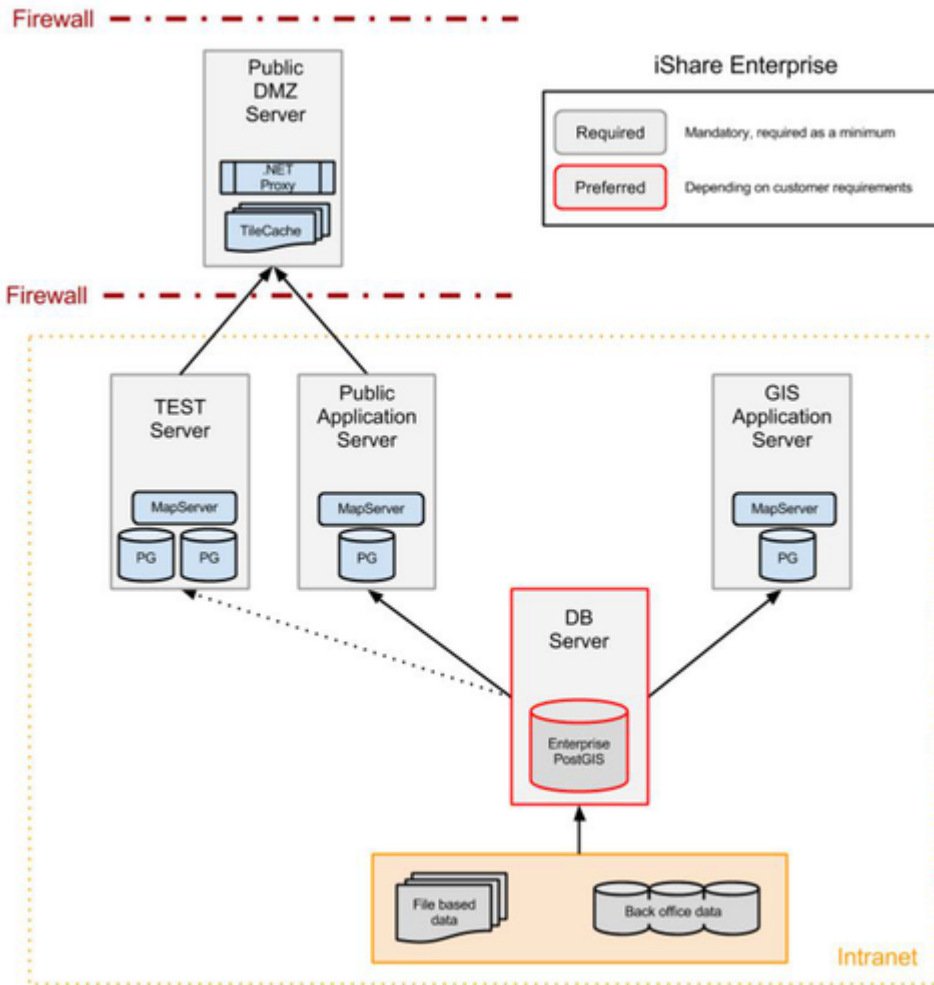
The key components are -

- Front-end - Public DMZ Web Server
- Back-end - Public Application Server
- Separate Database Server - Optional

The iShare Maps Web front end on the Public DMZ server has a web.config file which points to the iShare Maps Web Service on the Public Application Server.

Load up web.config and identify the iShare.config value. In the iShare Maps Training instance this looks like this;

```
<add key="iShare.config" value="http://localhost/iShareLIVE.WebService/"
/>
```

For iShare GIS the web.config contains the following;

```
<add key="iShare.config" value="http://localhost/iShareGISLIVE.WebService
/" />
```

Now that the iShare web application knows where the Web Service is, it communicates via HTTP.

- Web Pages - atMyCouncil.aspx, Solo/Lite Maps, iShareGIS.aspx
- Data Requests - getData.aspx, MapGetImage.aspx (info clicks)

- MapServer Image Requests for overlays - MapGetImage.aspx
- MapServer Image Requests for client-maintained Basemaps - MapGetImage.aspx
- ADS Basemaps Requests are made from the Client web browser to t0.ads.astuntechnology.com

1.3. Components

The following components are installed usually in a second drive e.g. D:\Astun

- Studio - D:\Astun\iShare[GIS]\x.x\Studio\Astun.iShareMaps.Studio.Shell.exe

  The same folder contains Astun.iShareMaps.Studio.Shell.exe.config which defines the top-level configuration - the location of the settings.xml. If you have several installations of iShare then this will let you know where Studio is pointing.

- WebService - D:\Astun\iShare[GIS]\x.x\WebApps\WebService

  This is the back-end web service application that talks to the Web front-end.

  The folder also contains the Config folder which contains the map sources and data sources.

- Web - D:\Astun\iShare[GIS]\x.x\WebApps\Web or a DMZ location

  In the case of iShare Maps the web folder would be generally held on a DMZ server. In the case of iShare GIS both the WebService and the Web applications would sit on the same server.

  The folder contains the end-point for iShare

    - For iShare Maps this would be client styled versions of the atMyCouncil.aspx file and example Solo and Lite Map files. Resources used for client styling would sit in the custom folder.
    - For iShare GIS this would be iShareGIS.aspx

- MapServer files - E:\iShareData\<Client>_mapserverconfig*.map

  Each mapsource in Studio is associated with a MapServer .mapfile - generally held in this directory.

1.4. Summary of Configuration Files

- Mapsource .xml files under WebServices\config\<client>\
- MapServer .mapfiles under iShareData\<client>_Mapserverconfig\
- Settings.xml leads to Data.xml, iShareDataRoot.xml and the DataShare_<client>.xml.

2. Studio Overview

This section provides an overview of Studio functionality, including Map Sources, Layers, Data Share Connections, and Workflow.

2.1. Map Sources

Map Sources in iShare define a set of source data, with styling and other configuration, which can be managed independently and used to populate different parts of the iShare interface. Each Map Source is associated with a MapServer .map file, though several Map Sources can use the same .map file.

There are several categories of Map Sources, each of which has its own purpose and characteristics.

- Base Maps - These include background mapping such as OS data, Aerial Photography,

OpenStreetMap and so on. Base Maps are used in all mapping modules except for My House and My Nearest.

- My Maps - These are used in My Maps, iShare Lite, iShare Solo and iShare GIS.

The following Map Sources are used in iShare Maps, so are covered separately if required.

- My House - These are only used in My House and My Nearest.
- Logger - These are only used in the Logger module.

Base Maps

Any GIS platform needs base maps, and iShare supports numerous types e.g. Aerial Photography, OS MasterMap, Historic Maps etc. Currently the workshop uses the OS OpenData maps available through Astun Data Services.

Base maps will either use a tilecache or a data source for the base mapping. If a tilecache has been defined for a base map that will be used in preference of the source data. Inspect how the Surrey Air Survey map source is defined and note the presence of the tilecache.

The XML files that define base map sources are stored in the WebService\config\mapsources folder. For this workshop this can be found here:

```
D:\Astun\iShare[GIS]\LIVE\WebApps\Webservice\config\mapsources
```

Each map source will have a corresponding .map file pointing to the source data. In the case of the workshop this is

```
E:\iShareData\LIVE\_MapserverConfig.
```

Open Studio and see the existing Base Maps.

Expand the BaseMaps node and choose the OS OpenData map source. If you select this, you will see four tabs in the main window:

- MapSource: Basic information about the map source. Basemap type controls whether it is a WMS source or a legacy source (e.g. a tilecache or a MapServer source)
- Map Editor: A text editor for the MapServer mapfile
- Map Viewer: A simple viewer for the MapServer mapfile
- Metadata: Where you may enter the details of the Catalogue Service for the Web (CSW). This is a web service like WFS or WMS but for accessing Metadata rather than Spatial data.

If you expand the OS OpenData node then you will see two additional nodes below it:

- Start up: Zoom level and boundary settings
- Details: The location of the MapServer mapfile that this source refers to, copyright statement, tilecache URIs (if configured) and zoom scales.

This is where base mapping is configured. Each base map has an associated MapServer .map file. Typically clients have an Ordnance Survey and an Aerial Imagery base map.

Sometimes a tilecache will be constructed from a client's own base mapping and is placed on the public facing DMZ server to reduce overheads. Tilecache configuration is beyond the scope of this workshop material but is available through Astun's online help, training sessions or additional consultancy hours.

The workshop base maps include:

- OS OpenData - from Astun Data Services
- OS OpenData BW - from Astun Data Services
- Surrey Air Survey - an aerial imagery base map for Surrey
- No Map - a blank 'no maps' base map

MyMaps

Any Map Source that you wish to use in iShare GIS or iShare Maps modules (My Maps, iShare Lite maps, iShare Solo maps) will need to be defined under the MyMaps node.

Like the BaseMaps node, clicking on the main map source name will provide access to the Map Source, Map Editor, Map Viewer and Metadata tabs. The MapSource tab contains the following:

- The MapServer mapfile location
- Paths and Watermarking
- BaseMap Sources: the base maps that you want to make available to this overlay - select the one you want to be loaded by default and click **Set default**
- Find Address: The type of address lookup. Note: this is generally configured by Astun and should not need changing from the default

Expand the Astun Maps node to show:

- Start up: Zoom level and boundary settings
- Take Me To: Any short-cut locations defined (applicable to iShare Maps only)
- Layers: The Layer Groups and Layers to be included in the map source
- Roles: Control the users that are allowed to see this map source (applicable to iShare GIS only)

You can set a default map source by right-clicking one of the map sources in the list and choosing "Set as Default MapSource".

2.2. Data Share Connections

Data Share Connections are used if you have non spatial data that you wish to use in iShare. You may want to:

- Present the data in My House / My Nearest
- Join the data to an existing spatial dataset
- Spatialise the data, if it contains Easting / Northing or Long / Lat as opposed to geometry type
- Make the data accessible through the iShare API or Publisher

This is where connections to external systems are configured, and selected data is synchronised or copied into the iShare PostgreSQL database. (Data Share is also used within layer configuration, but this will be covered in later sessions).

Data Share connections can be to any external database such as Oracle, MS SQL server, Microsoft Access, or flat files such as csv or xls. It is also possible to connect to RSS feeds.

Data Share connections can be placed into groups, for ease of organisation. Groups are configured by selecting the main Data Share Connections node, and clicking **Edit Groups**. This section of Studio also allows configuration of the main iShare database.

Data Share Connections are definitions of data sets that can be used in Map Source layer definitions such as UPRN-based council tax information.

If the data is from an external database or feed the data is replicated locally in PostgreSQL through scheduled synchronisation.
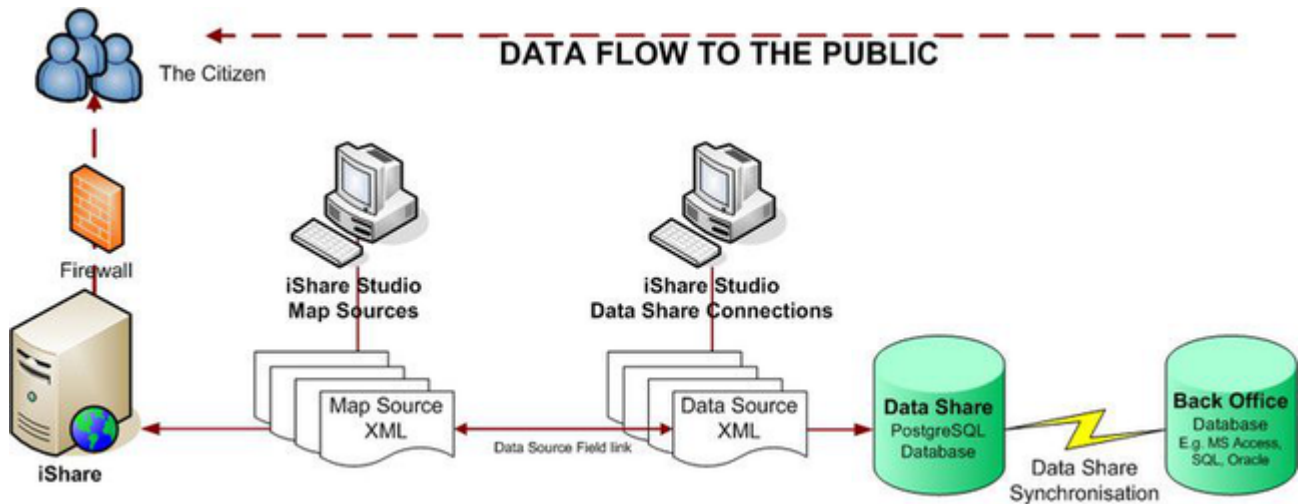
This allows the data to be displayed through iShare Maps or iShare GIS. It is also exposed through the iShare web services.

Data Share Connections can be formed from the following:

- A SQL Select statement to an external database,
- A SQL Select statement to the local PostgreSQL iShareData database,
- The product of a function or command in the local PostgreSQL iShareData database,
- An XML feed such as RSS or GeoRSS.

The local PostgreSQL database can be viewed using pgAdmin. It's commonly called "iShareData".

We will now demonstrate different kinds of Data Share Connections, by doing the following:

- Run pgAdmin and connect to the iShareData workshop database.
- Selecting Data Share Connections > Edit will demonstrate the DSN definition to the local iShareData database.
- Select the Council Tax data share. This is used in My House as a data source. The icon indicates it is an internal iShareData select statement and therefore can not be synchronised.
- Select the RSS Feeds > BBC Surrey News RSS. The icon indicates that is an XML feed. The number of records limits what is held in the iShare PostgreSQL database and thus what is displayed in My House. We can synchronise the data share connection manually by right-clicking on the data share.

2.3. Workflow

Workflow Connections

Jobs and Tasks can be configured to retrieve data from databases through Workflow Connections. By default there will be a connection to the iShare PostgreSQL database. For the Workshop database, this is the connection "DataShare".

There might also be connections to external data sources such as Astun Data Services (for NHS Choices or Police Data).

Workflow Jobs

Studio workflow organises individual Tasks (discussed below) into Jobs, where the Tasks can be ordered, and the Job set to run at a particular time, using Microsoft Task Scheduler.

Any Task that is not part of a Job is placed in the **Unassigned tasks** group.

Right-click on a Job to add a new Task, copy an existing one, remove a Task from the Job, delete the Job, or run it.

Note: Task and Job names must be unique.

Workflow Tasks

There are four types of task, the most common of which will be demonstrated in more detail later:

- Spatial Data Transformation: transforms spatial data from one type to another
- Stored Procedure: runs a function within the Postgres database
- VB Script: runs a custom visual basic script
- Program: runs any type of executable, such as python scripts, batch files and so on

Workflow Notifications

Studio can be configured to send notification emails when a scheduled job has failed to run. To configure the Notification Settings, click on the **Workflow** node and then the **Edit** button. This will activate the **Notification Setup** button, where you can add the following:

- From: the email address you wish the emails to come from
- SMTP: the address of the SMTP server
- Subject: the email subject should contain some useful identifiers e.g. '<Council name> iShare Maps Live Server'
- To: the email address you wish the emails to be sent to
- Astun: the Astun email address you wish the emails to be sent to (the default is notifications@astuntechnology.com)

When you have filled these in, you can click the **Test** button to send a test email. Save your settings if you change anything.

Scheduled tasks

- Scheduled tasks should be generally be set to run in off-peak hours.
- You can list all scheduled tasks using the command line executable **schtasks.exe,** or use **Task Scheduler** in **All Programs > Administrative Tools**.
- Inspect last run results for anything that isn't running correctly.

3. Using Studio

3.1. Add a New Layer

This section describes how to add a new layer using the festival amenities and boundaries data, to an iShare installation using Studio. The exercise assumes that source data has first been loaded into the PostgreSQL database using a Workflow Task ready to be configured in Studio.

Overview

iShare supports two types of layers: OGC Layers (the default), and Classic layers.

OGC Layers read data directly from the database, and are configured in Studio using a simple styling editor, This creates styles in SLD (Styled Layer Descriptor) format, a standard GIS representation of styling used by many other GIS tools.

Classic Layers are configured using a MapServer .map file, which contains both the location and connection details of the source data, and the styling.

Astun recommends that most layers should be created as OGC layers, but you may sometimes want to use Classic layers. The table below sets out some considerations to bear in mind when choosing whether to use Classic or OGC layers.

Feature	Layers (OGC)	Classic Layers	Comments
Styling	Studio Editor	Mapfile	Styling via the Studio editor is more limited, but uses a graphical interface.
Source	Postgres Layers only	Postgres, Shapefile etc.	If you need to display shapefiles or .TAB files directly in iShare, you'll need to use a Classic layer.
Thematics	Yes	Yes	Styling can be edited in iShare GIS with Classic thematic layers.
Editing in iShare GIS	Yes	No	Classic layers can't be edited in iShare.
Styling based on expressions	Studio	Mapfile	For OGC layers, SLD needs to be manually edited, or created externally (e.g. in QGIS) and copied to iShare.
User filtering in iShare GIS	Yes	No	Allows end user to filter display based on attribute values.

Importing data into PostgreSQL

The first part of the exercise will take you through the process of importing data into the PostgreSQL database using Studio. You will import a shapefile into PostgreSQL, so that in later stages it can be configured as an iShare layer.

1. Open either iShare Studio or iShare GIS Studio from the desktop as instructed.
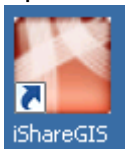
2. Expand the **Workflow** node by clicking on the plus beside the node.
3. Now expand the **Jobs** node.
4. Right click on **Unassigned tasks** and select **New Task**.
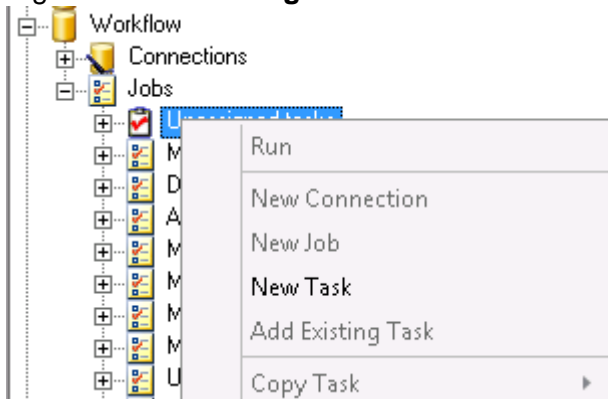
5. Select **Spatial Data Transformation** as the Task Type and click OK.

ASTUN TECHNOLOGY

Task Type

Types available:

⦿ Spatial Data Transformation

This is because we want to transform the spatial data to load it into Data Share.

6. First import data from the Shapefiles in **E:\iShareData\LIVE\Maps\Overlays\Test**, selecting the **workshop_points** and **workshop_polygons** shapefiles and putting them in the workshop schema of the iShareData database - (this has been configured as the **DataShare** Workflow Connection). Use the same table names as the files.

☑ Unassigned tasks > Import Workshop Polygons

Name: Import Workshop Polygons   ▶

Source Data
ShapeFile   ▼
Filename:
E:\iShareData\LIVE\Maps\Overlays\Test\workshop_polygons.shp   ...
Input encoding:
UTF8   ▼

Output
DataShare   ▼
Table:
workshop.workshop_polygons   ▼   Test

7. Save the changes using the main toolbar 💾

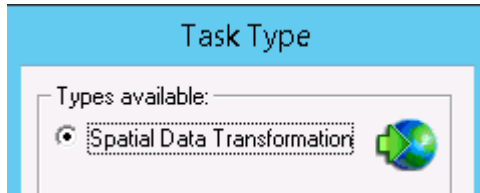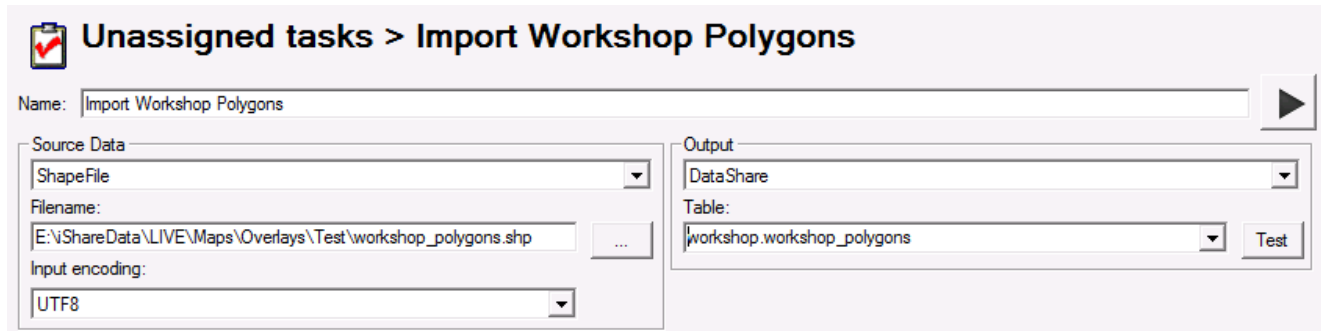8. Run the task from the button to the right of the task name ▶
   The data from the shape file has now been loaded into PostgreSQL.

9. Repeat this for both the **points** and the **polygons** data.

10. To verify that the tasks have been successfully completed run pgAdmin from the Windows taskbar
    🐘 pgAdmin III
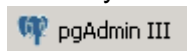
11. Expand the PostgreSQL 9.0 'tree'

Object browser
📇 Server Groups
⊟ 📇 Servers (1)
   ⊞ 📄 PostgreSQL 9.0 (x86) (localhost:5432)
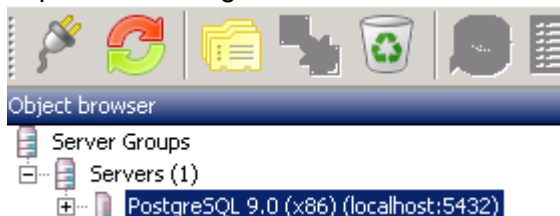
12. Expand/ navigate to the 'iShareData' database and look for your new 'workshop_points' and 'workshop_polygons' table within the 'workshop' schema

⊟ ◈ workshop
   ├ 🗄 Domains (0)
   ├ 🗄 FTS Configurations (0)
   ├ 🗄 FTS Dictionaries (0)
   ├ 🗄 FTS Parsers (0)
   ├ 🗄 FTS Templates (0)
   ├ 🗄 Functions (0)
   ⊞ 🗄 Sequences (2)
   ⊟ 🗄 Tables (2)
      ⊞ 🗄 workshop_points
      ⊞ 🗄 workshop_polygons
   ├ 🗄 Trigger Functions (0)
   └ 🗄 Views (0)
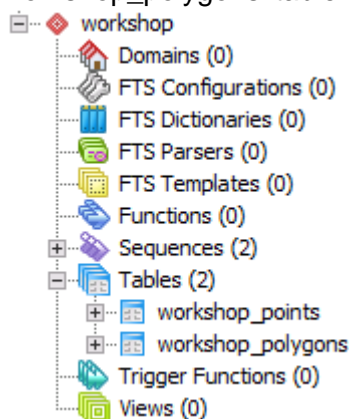
13. Right click on this table and select 'View Data' then 'View All Rows' to view the data.

Create a new Layer Group and Layer in Studio

Carry out the following steps to create a new Layer Group, then a new Layer, in order to make the layer created in the step above available to iShare (GIS).

1. Navigate to the **Layers** section within the **Default** Map Source.
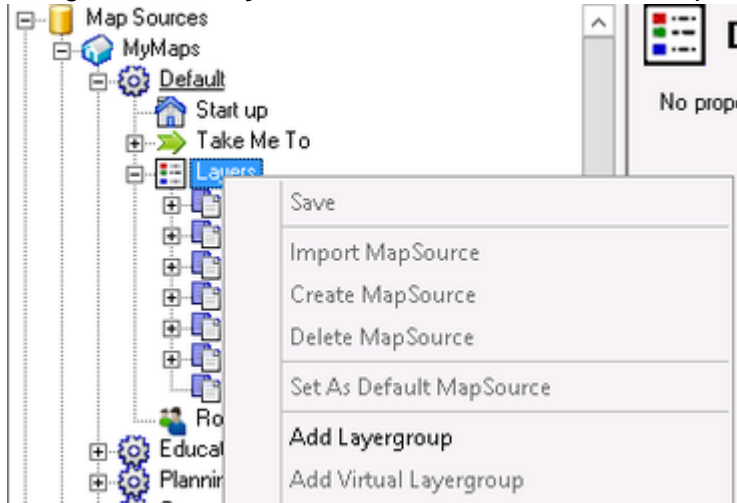
2. Right click on **Layers** and select **Add Layergroup**.
3. Name this Layer Group Test Layers.
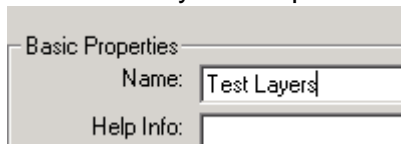
4. Save the changes made in the main toolbar.
5. Right-click on the newly-created 'Test Layers' Layer Group, and select **Add Layer**.
6. Edit the **Display name** (*not* the **Layer name**).
7. Select the underlying dataset by selecting the appropriate **Geometry table** ("workshop"."workshop_polygons") and make sure that the **Geometry type** has been correctly determined - it should be Polygon.

    Note: You can also define a dataset by a SQL select statement using the **Modify SQL** button.
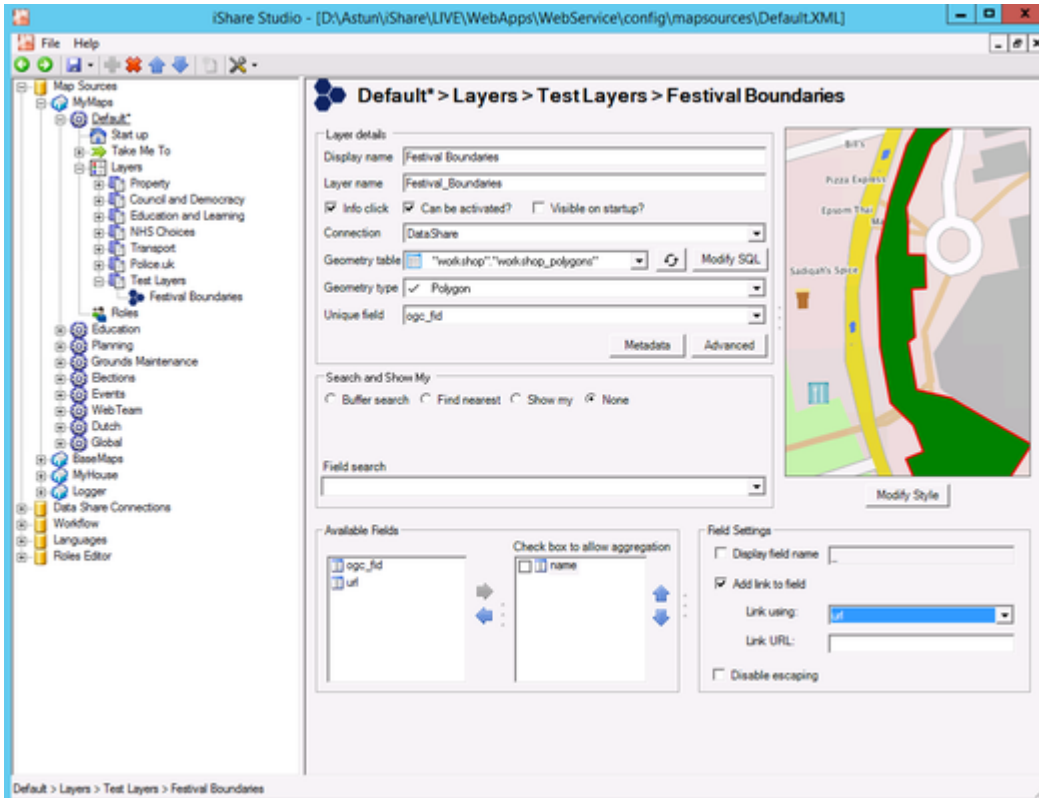
8. Now we will select the fields that we want to display. Double click on the **name** field in the list of Available Fields. Now uncheck **Display field name** and click the **Add link to field** box. Now change the **Link using** entry to pick the **url** field. See above screenshot for details.

9. Use the **Modify Style** button and choose a style that suits the geometry type. Any changes that you make will be shown in the preview window. Our polygon dataset is the basis for a festival boundary, and the points represent the festival's amenities.
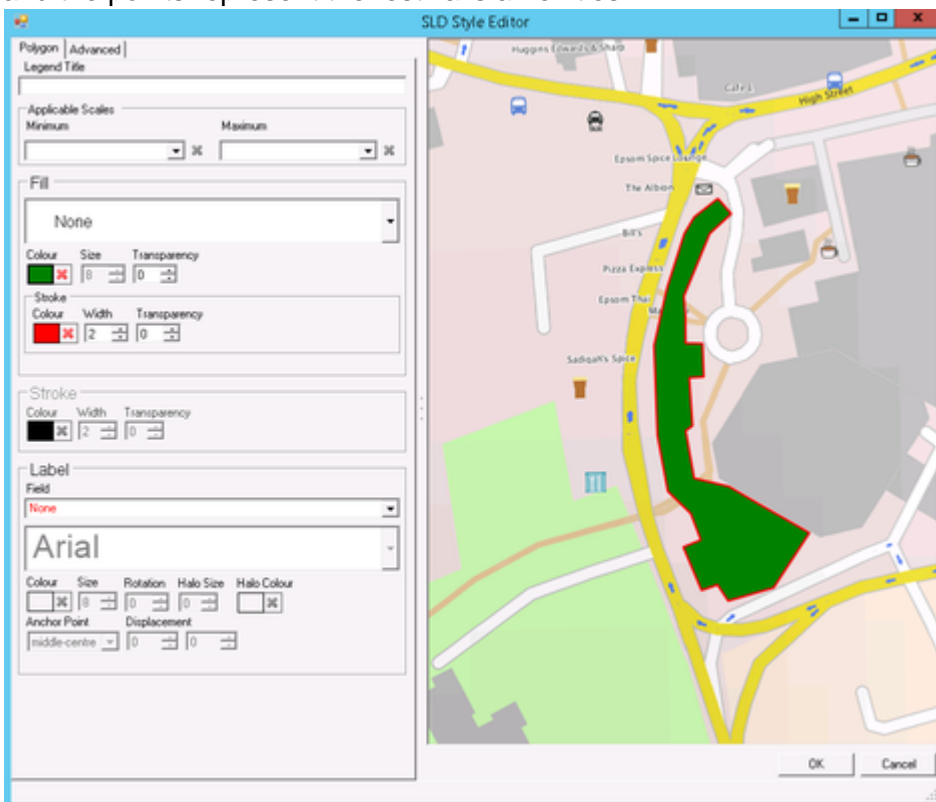
Note: The **Advanced** tab allows you to edit the SLD (the code which represents the styling) directly. If you are comfortable working with SLD, and want to tweak the styling in the source code, you could try this - but take a backup of the file before you start. Alternatively, you can generate SLD in other

tools (for example QGIS) and copy it to iShare, though it may need some tidying. This will be demonstrated in a minute if required.

The polygon dataset contains two polygons. We now wish to display the 'Camberley Music Festival' polygon and not 'Donkey Derby'. How can we do this? You can modify the SQL and just select the record you require e.g.
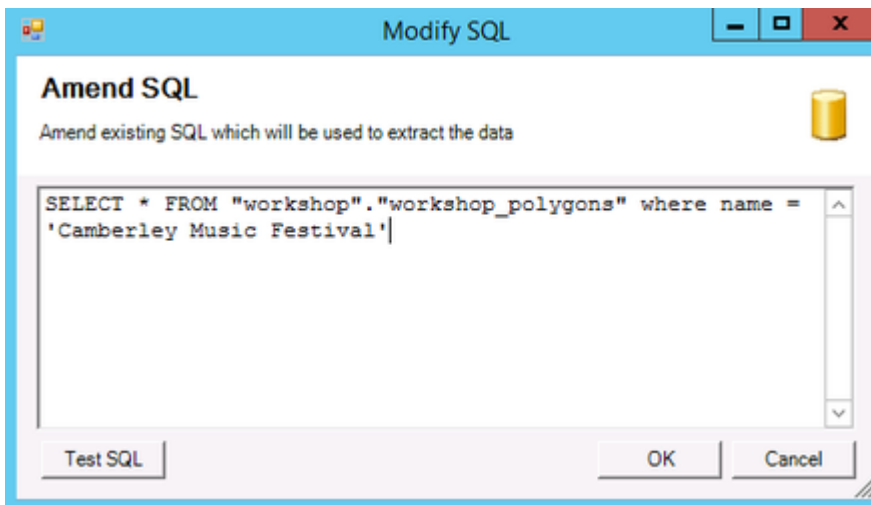
Now we need to repeat the process for the **Festival Amenities** (using the "workshop"."workshop_points").

1. Make sure that have have selected both the **name** and **icon** fields from the list of Available Fields.
2. Now click **Modify Style** and pick an icon to be displayed for your points layer.
3. To label the amenities, as we have brought across the **name** field across from the Available fields list, this can be selected as the label source when styling. Create a **Halo** around labels for clarity.
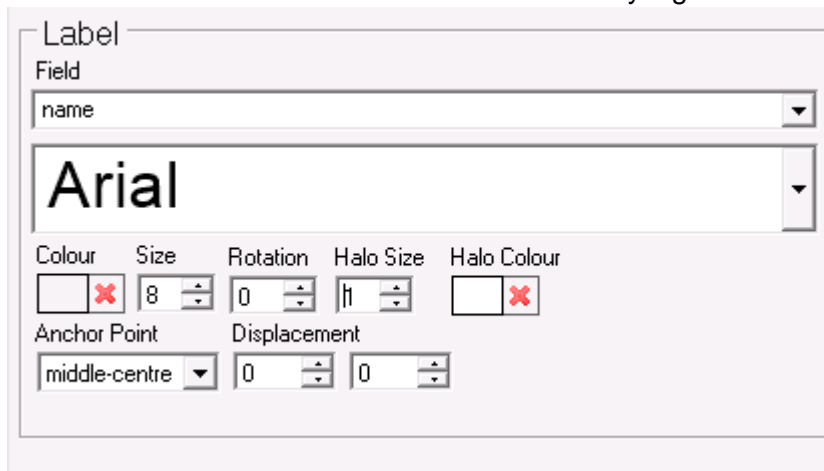
4. If you haven't already done so rename the two layers: Festival boundary and Festival amenities.

View http://localhost/iShareGISLIVE.web/isharegis.aspx in a browser and select the default profile. If you are asked for credentials, use the ones you were provided for logging in.

The end result should look something like this (the interface will be slightly different in iShare Maps):
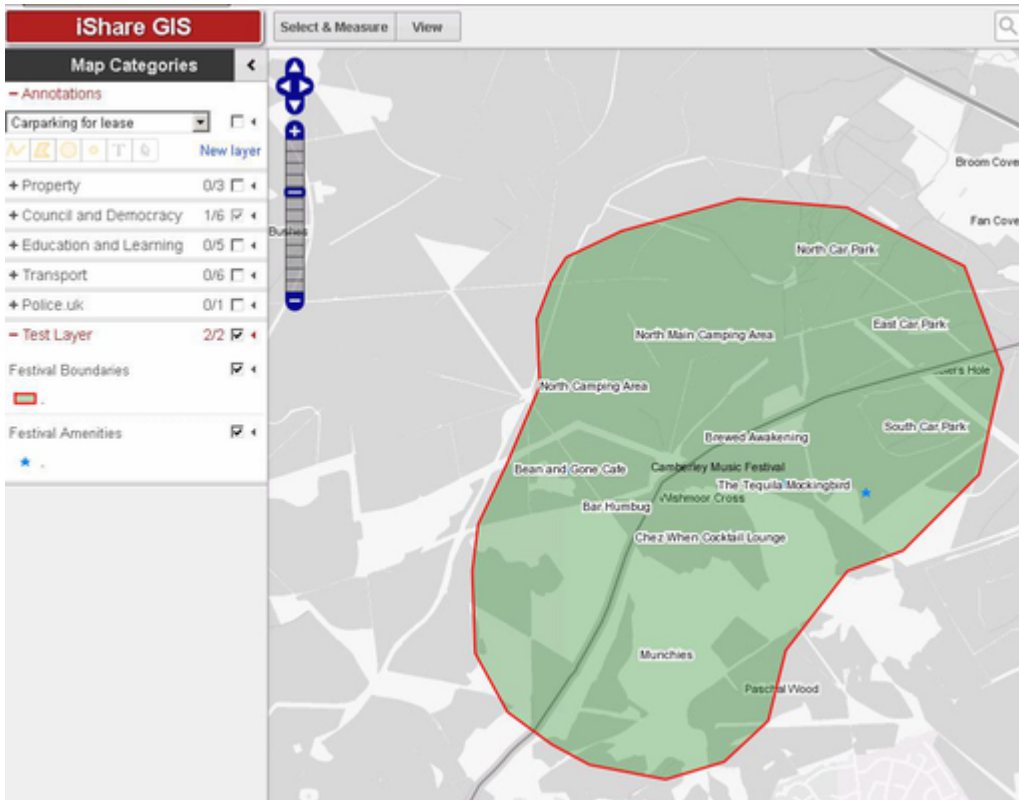
We have icons in our amenities layer, so it would be nice to be able to use these for each of the amenities. This involves using the **Advanced** button in the SLD Style Editor.

In true "Blue Peter" fashion "here is one we made earlier".

1. Expand the **Events** map source in Studio and select the **Festival Amenities** layer.
2. Click **Modify Style** and copy all the rules.
3. Now navigate back to your **Festival Amenities** layer in the Astun Maps **Test Layers** layer group.
4. Click **Modify Style** and select the **Advanced** tab.
5. Now paste the rules that you have previously copied and click **OK**.
6. Note that you must bring the icon field across from the available fields list as this is used in the rules.
7. Save your changes and see the difference.
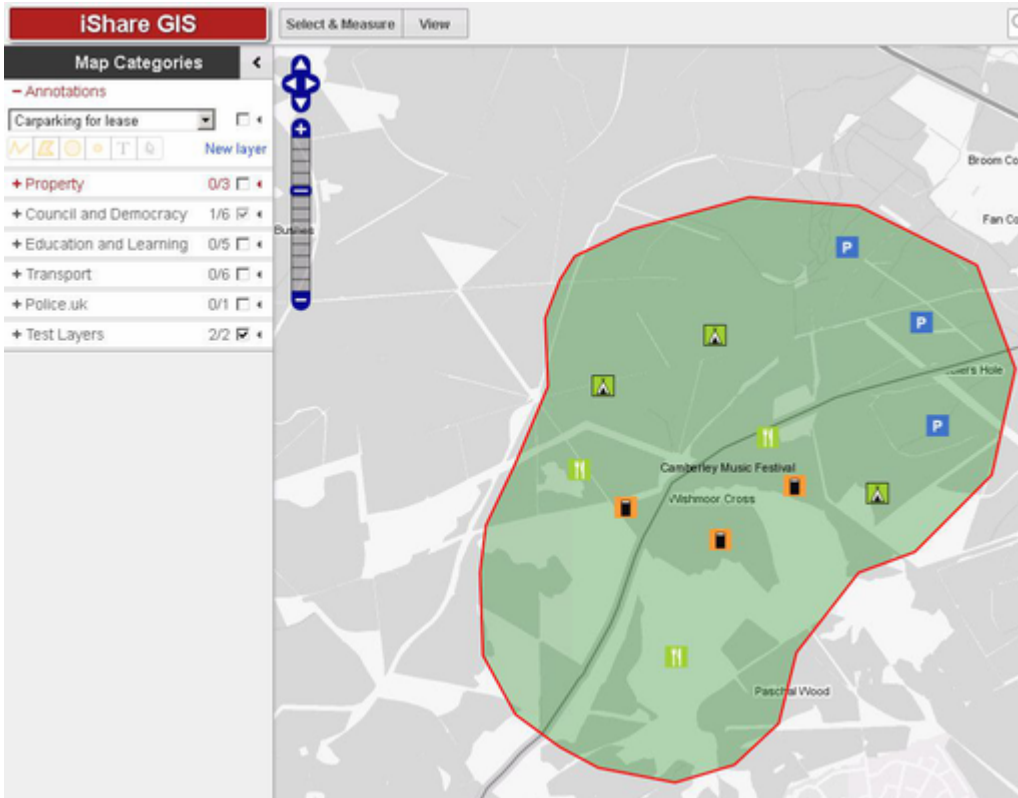
3.2. Thematic Layers

iShare can also represent datasets as thematic layers. Styling is applied to each feature according to the value of a field in the source data - for example, a ward layer could be coloured on a red to green colour ramp based on the number of road accidents in the ward in the previous year.

The editing interface includes settings for:

- **Method**: i.e. the way that the values in the range are grouped for each classification, including Equal Range, Equal Count, and Standard deviation
- **Number of Ranges**: the number of classification groups to be used for the values, from three to ten
- **Starting colour**: the starting colour to be used in the colour ramp, chosen from a number of preset colours, or specified with a hex value
- **Ending colour**: the ending colour to be used in the colour ramp, chosen from a number of preset colours, or specified with a hex value
- **Fill opacity**: the opacity of the fill colour used for the polygons, selected using a slider
- **Stroke opacity**: the opacity of the border of the polygons, selected using a slider

Creating a Thematic Ward Layer

1. Under the Council and Democracy Layer Group right-click and select 'Add Layer'.
2. Rename the layer (in **Display Name**) as **Thematic Ward**.
3. Select the 'public'.'wards_thematic' as the geometry table and polygon as the geometry type.
4. Select the **hectares**, **number0** and **name** fields from the list of Available fields.
5. Click **Advanced** and check the **Thematics** checkbox.
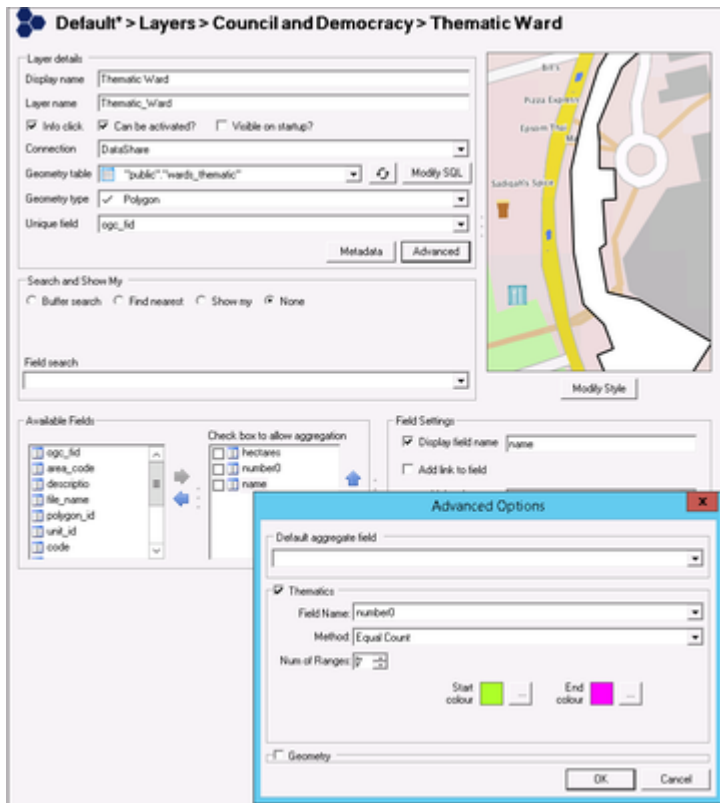
6. In the **Advanced Options** dialogue, select **Field Name**: number0, **Method**: Equal Count and **Range** of 7, and choose a suitable colour scheme.
7. Save in Studio, and refresh the iShare application in the browser.
8. Select your new Layer from the Layer Catalogue (if using iShare GIS)
9. In the browser select the select Council and Democracy > Thematic Ward layer, and thematic layer something like this will appear in iShare (this will look slightly different in iShare Maps):
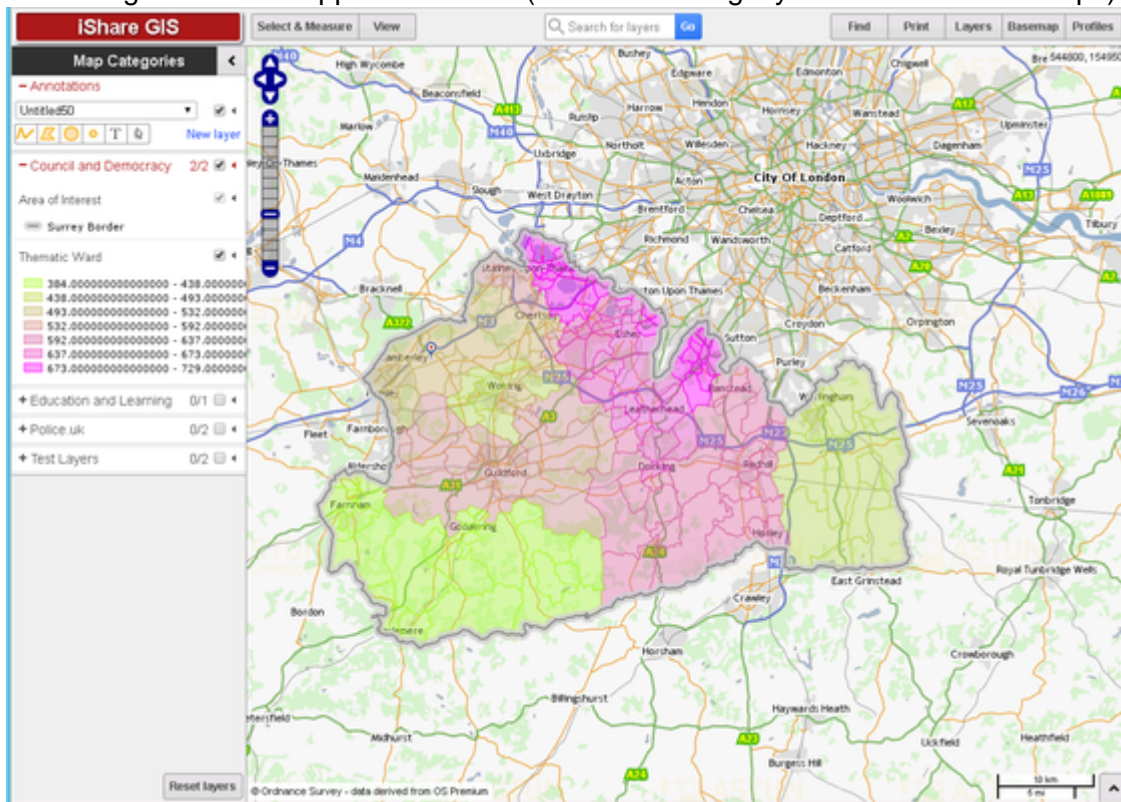
3.3. Add a Classic Layer

This section describes how to add a new Classic Layer to an iShare installation using Studio. The exercise assumes that source data will first be loaded into the PostgreSQL database using a Workflow Task and then configured in Studio.
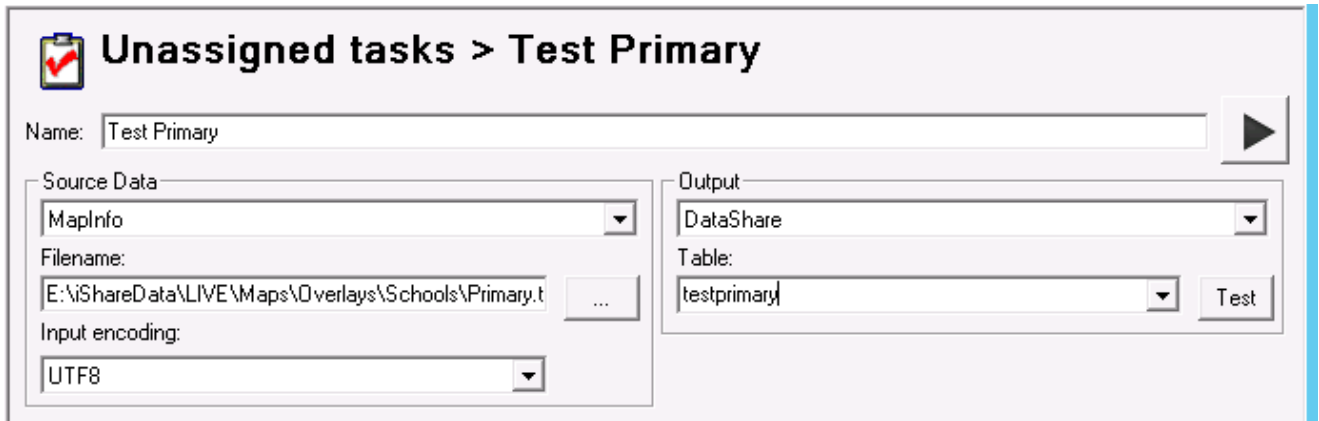
Classic Layers are required if you are presenting data in My House, My Nearest or if you wish to use Clustering as a way of styling your Layer. There is a useful page in the on-line documentation on Configurin g MapServer Cartography which you may find useful.

This exercise creates a layer using a layer definition held in the map source's associated .map file. This is the way that layers were defined before the availability of OGC layers.

Importing data into PostgreSQL

First we need to import a MapInfo TAB file into PostgreSQL using a Workflow Spatial Data Transformation task as we did earlier, so that it can be configured as an iShare layer.

1. Expand the **Workflow** node by clicking on the plus beside the node.
2. Now expand the **Jobs** node.
3. Right click on **Unassigned task**s and select **New Task**.
4. Select **Spatial Data Transformation**
5. The New Task dialogue will display, ready for you to enter the appropriate parameters.

6. Enter the following parameters:

Name	Test Primary
Source Data	MapInfo
Filename	E:\iShareData\LIVE\Maps\Overlays\Schools\Primary.tab
Input encoding	UTF8
Output	DataShare
Table	testprimary

When you have completed the dialogue:

1. Save the changes using the main toolbar.
2. Run the task from the button to the right of the task name.

Configuring the Layer

Now we have the data within the PostgreSQL database, we need to create a layer in the MapServer mapfile in order to use the data in iShare. In this exercise we will use the Studio Map Editor to first copy and paste an existing MapServer layer definition, and then edit the definition to use the PostgreSQL 'testprimary' data loaded in the previous step.

Create a MapServer Definition

1. Select the **Default** map source within MyMaps in Studio.
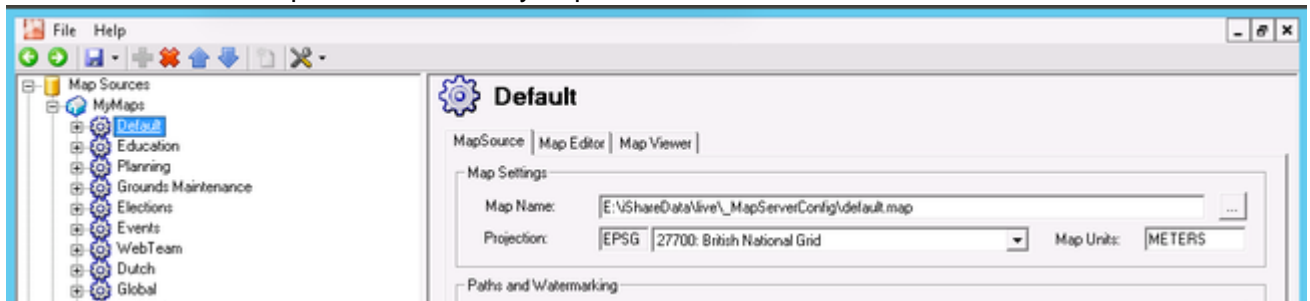
2. Select the **Map Editor** tab.
   The Map Editor shows the current MapServer mapfile configuration. In the **Layers** tab below the editing window, the layers defined in the mapfile are listed.

3. If you scroll down the map entries you will find a commented out LAYER for "primarytestdata"

4. Remove the # (uncomment) from each of the lines making up the primarytestdata layer as shown in the screenshot below (making sure you select the `LAYER` and `END` tags)

5. Now save this layer using the icon in the Map Editor toolbar.

You have now created a new MapServer layer called 'primarytestdata'.

In summary, we've moved the data into the PostgreSQL database with a Workflow Task and we've created

a Layer definition in the map source's associated MapServer mapfile. The next step is to create the layer in the map source.

Create a new Layer in Studio

1. Right-click on the **Test Layers** layer group and select **Add Classic Layer**

2. Configure the new layer as follows:

   Display Name: Primary Test
   Layer Name: primarytestdata (selected from the drop-down menu)
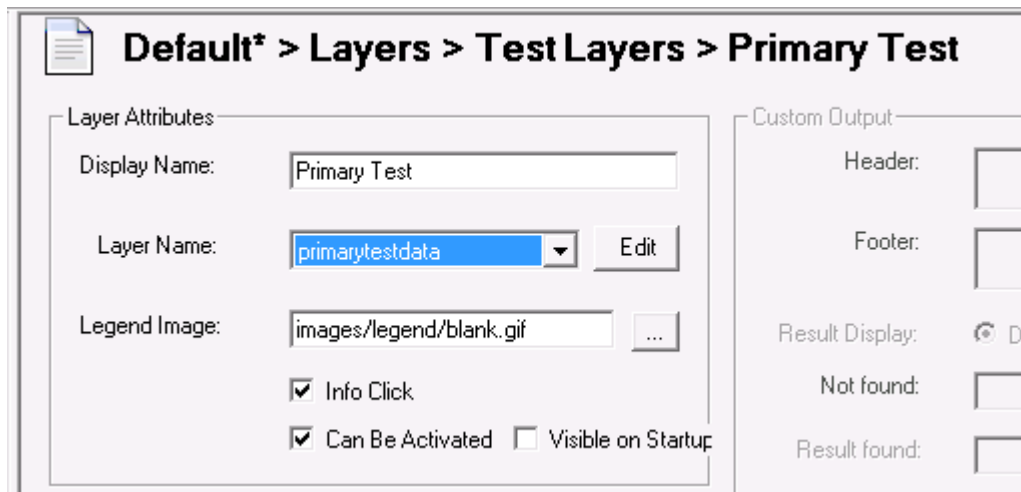
You should now have the 'testprimary' database table column names displaying in the 'Available Fields' panel
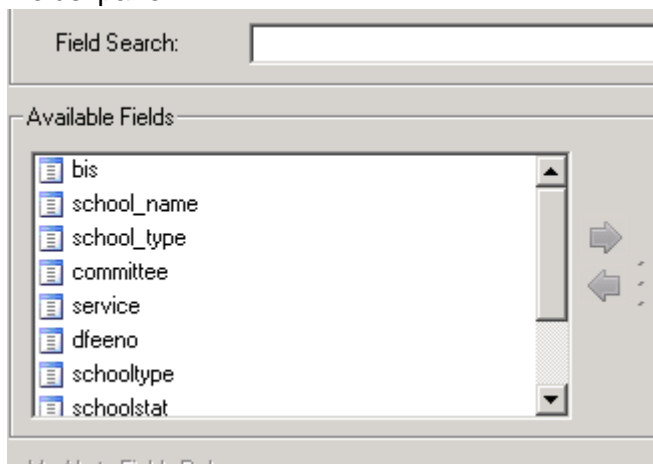
3. Double-click on some or all of these fields to move them to the right hand panel; this will allow the content of the fields to be displayed in iShare.
4. Save the changes you have made.

Viewing the new iShare layer within a browser

1. Refresh your browser using ctrl+f5
2. Select your new layer from the Layer Catalogue (if using iShare GIS)
3. Switch on your new Primary Test Layer
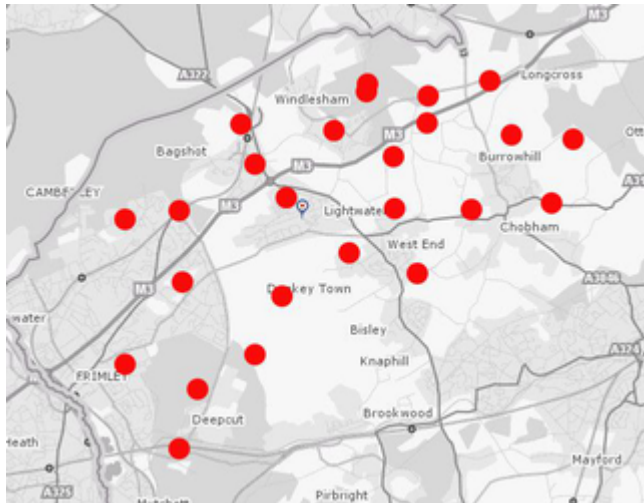
4. Click on one of the symbols to reveal the fields that you selected for your layer.

In summary, you have: (NB: it is worth following the trail of events below within Studio)

- Created a Workflow Task (called 'Test Primary') within Studio to import a MapInfo tab file ('Primary.tab') into a new PostgreSQL table (called 'testprimary')
- Within Studio you then created a MapServer mapfile layer (called 'primarytestdata')
- You then added a new Studio layer called 'Primary Test' (which uses the MapServer 'testprimary' layer), and you then selected a number of fields to display.
- You then viewed your new layer within a browser.

Other things to explore

The presentation of attribute information can be controlled by adjusting a layer's Field Settings within Studio. It's possible to control which attributes are visible, add aliases to fields and generate hyperlinks.

We can also control whether a layer should be visible on startup (in conjunction with the **Can Be Activated** button) and whether information should be returned from an info click.
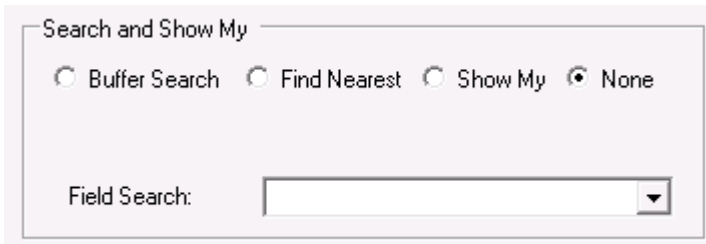
The layer **Search and Show My** options allow users to search against a given field, and to perform **Find Nearest** functions.

3.4. Layer and Map Source Management

To create a new Map Source, or re-organising Map Sources, you may need to use the the following procedures.

- Copy a Mapsource
  - Right-click on the map source group in Studio and select **Create New MapSource**
- Copy a MapServer .map file
  - Go to mapserver .map files folder (normally in iShareData\LIVE_Mapserverconfig), and copy and rename.
  - Note that there are also example mapserver files in iShareData\Astun_Mapserverconfig
- Copy Layers between MapSources
  - Close Studio
  - Navigate to the folder where the map source files are held, for example Astun\iShare[GIS]\LIVE\WebApps\WebService\Config\mapsources\, and locate and open both map source xml files in a text editor
  - Copy and paste the whole of the `<Layer>` element from the source to the destination map source
  - Save the amended map source
  - Open Studio, and check the the new layer is in place.

Note that Layer Groups **cannot** be copied as they contain unique IDs.

3.5. Legends

Dynamic Legends

In order to use dynamic legends with classic layer, so that an icon for the style of the layer automatically appears in the list of layers in the web interface, you must make sure that you have configured the following.

1. MapServer must be enabled for WMS support.

WMS and WFS require a `NAME` and `PROJECTION` to be defined – British National Grid is EPSG:27700 (WGS84 is 4326), as in the example below. A series of METADATA tags need to be defined in the .map file, together with `WEB` and `LAYER` levels to enable this functionality. As the WMS and WFS are both OGC web services the generic tags can often be substituted (i.e. `wms_title` can be used as `ows_title`).

```
MAP

    EXTENT 480000 149000 504600 169000 # Tile Cache

    FONTSET "D:/mapserver/shared/fonts/fonts.list"
```

```
    TEMPLATEPATTERN "."

    SYMBOLSET "D:/mapserver/shared/symbols/symbols.sym"

    SHAPEPATH "D:/Maps/Workshop/"

    SIZE 512 512

    MAXSIZE 8192

    STATUS ON

    UNITS METERS

    NAME "Astun Technology Workshop"

    IMAGETYPE AGG_Q

    OUTPUTFORMAT

        NAME "AGG_Q"

        MIMETYPE "image/png; mode=24bit"

        DRIVER "AGG/PNG"

        EXTENSION "png"

        IMAGEMODE "RGBA"

        TRANSPARENT TRUE

        FORMATOPTION "TRANSPARENT=ON"

    END

    CONFIG "PROJ_LIB" "D:\mapserver\cgi-bin6.0\proj\nad"

    PROJECTION

        "init=epsg:27700"

    END

    WEB

        METADATA

            ows_title "Astun Technology Workshop WMS Server example"

            ows_enable_request "*"

            ows_srs "EPSG:27700"

            ows_abstract "This is an example WFS server from MapServer"

        END

    END
```

2. If you don't already have a LEGEND section in your then you will need to add it e.g.

```
 LEGEND
```

```
      IMAGECOLOR 255 255 255

      KEYSIZE 20 10

      KEYSPACING 5 5

      LABEL

         SIZE MEDIUM

         TYPE BITMAP

         BUFFER 0

         COLOR 0 0 0

         FORCE FALSE

         MINDISTANCE -1

         MINFEATURESIZE -1

         OFFSET 0 0

         PARTIALS TRUE

      END

      POSITION LL

      STATUS OFF

   END

      ...
```

3. In Studio the **Legend Image** entry for the Layer needs to point to a non-existent file, e.g. images/legend/blank.gif.

4. The . needs to include a `NAME` entry for each `CLASS` in the `LAYER`. Note that this can be blank, for example `CLASS ""`.

```
...
CLASS

     Expression "CHLK"

     NAME "Chalk"

        STYLE

           OUTLINECOLOR 0 0 0

           WIDTH 2

           OPACITY 60

        END

        STYLE

           COLOR 200 255 175

           OPACITY 80

        END
```

```
        END


    CLASS

    Expression "CSDS"

    NAME "Calcareous sandstone"

        STYLE

            OUTLINECOLOR 0 0 0

            WIDTH 2

            OPACITY 60

        END

        STYLE

            COLOR 220 220 200

            OPACITY 80

        END

    END

...
```

Using Static Legends

To use Static Legends, that is a fixed legend image, make sure that you have configured the following.

1. In Studio, the Legend Image entry for the Layer needs to be defined as a valid image, e.g.images/carpark.gif.

2. This image must exist in same relative path in the both the Web and WebService folders e.g.

> D:\Astun\iShare\LIVE\WebApps\Web\images\carpark.gif

> D:\Astun\iShare\LIVE\WebApps\WebService\images\carpark.gif

3.6. Using HTML in Attributes

In this example we create some HTML code, which will open a URL in a new window, as a layer's attribute value.

Normally we would select the Link field in Studio and check the checkbox to generate a hyperlink for the field. Studio currently doesn't support the creation of a hyperlink for a new tab/window directly but it does provide an opportunity to see how html can be stored in a layer's field.

The following steps presume that you're using a table in PostgreSQL but this can work for other sources such as a shapefile or MapInfo tab file.

1. Open PgAdmin, and use the SQL dialogue to create a column in your table

```
ALTER TABLE mytable ADD COLUMN myhtml text;
```

2. Populate the column with some HTML that includes the link with the target parameter

```
UPDATE TABLE mytable SET myhtml = '<p><a href="http://www.google.co.uk"
target="_blank" >Here's Google in a new window</a></p>';
```

3. Alter the SQL in the MapServer .map file to include the `myhtml` column as `myhtml_raw` - this will ensure that the HTML is passed through without alteration.

```
LAYER

 NAME "mylayer"

 STATUS OFF

 TYPE POINT

 INCLUDE "datashare.inc"

 DATA "wkb_geometry from (select *, myhtml as myhtml_raw from
public.mytable) as foo using unique ogc_fid using srid=27700"

 TOLERANCE PIXELS

 CLASS

   NAME ""

   STYLE

     SYMBOL "circle"

     SIZE 14

   END

 END

END
```

4. In Studio include `myhtml_raw` to in the list of columns displayed.

Note: Make sure you include the http:// in the myhtml column - failing to so will result in the browser attempting to load the page as a local resource.

4. Managing iShare

4.1. Folder structure

iShare is an application constructed from two web applications, 'Web' and 'WebApplication'. Typical locations for key files are as follows.

- Web application
  - iShare Maps: D:\Astun\iShare\LIVE\WebApps\Web\atMyCouncil.aspx
  - iShare GIS: D:\Astun\iShareGIS\LIVE\WebApps\Web\isharegis.aspx (windows authentication is enabled)
- WebService application
  - D:\Astun\iShare[GIS]\LIVE\WebApps\WebService
- Map sources
  - D:\Astun\iShare[GIS]\LIVE\WebApps\WebService\config\<client name>
- MapServer .mapfiles
  - D:\iShareData\LIVE_MapServerConfig
- MapServer resources
  - symbols: D:\MapServer\shared\symbols
  - fonts: D:\MapServer\shared\fonts
  - projection information: D:\MapServer\shared\proj

4.2. Log Files and Debugging

Locations

iShare uses a range of log files to record actions and errors, and these can be useful in diagnosing problems with configuration or other errors. Because iShare uses third-party components, logs are held in a range of forms and locations. This section highlights where the main log files are, and how logging levels may be configured.

Component	Normal Log Location	Comments
MapServer	D:\mapserver\tmp\overlays.map.error.log	Location and logging level set in .mapfile
PostgreSQL	C:\Program files (x86)\Postgresql\9.0\data\pg_log\	Logs are in same location as PostGreSQL data
iShare Studio	D:\Astun\iShare[GIS]\LIVE\Studio\logs	Studio.log (main Studio log) ConsoleApp.log (workflow) iShareDataSyncConsole.log (Data Share)
Web front end	D:\Astun\iShare[GIS]\LIVE\WebApps\Web\logs	iShareMaps.all.log
iShare Maps/GIS	D:\Astun\iShare[GIS]\LIVE\WebApps\WebService\logs	iShareMaps.all.log

Make sure you look for the latest log files, with dates/times corresponding to the time of the actions you are investigating.

4.3. MapServer debugging

In order to enable MapServer debugging you need to perform the following steps:

- Set the `MS_ERRORFILE` variable
- Set the `DEBUG` parameter `[ OFF | ON | 0 | 1 | 2 | 3 | 4 | 5 ]`

The MS_ERRORFILE variable

This variable defines the name and location of the MapServer .log file. The recommended way to set the `MS_ERRORFILE` variable is in your .MAP file, within the MAP object e.g.

```
MAP

 ...

 CONFIG MS_ERRORFILE "..\..\..\mapserver\tmp\overlays.map.error.log"

 ...

END
```

The DEBUG parameter

If a particular layer is not behaving as expected you can place the `DEBUG` parameter in any LAYER in the .MAP file, or instead, set it once in the `MAP` object so that it applies to each layer. In the example below a

debug level of 0 is set at the Map level but a layer has received the verbose debug 5 level to track problems.

```
MAP
 ...
 CONFIG MS_ERRORFILE "..\..\..\mapserver\tmp\overlays.map.error.log"

 DEBUG 0
 ...
 LAYER

  DEBUG 5
    ...
 END
END
```

Use the value of the `DEBUG` parameter to set the type of information returned, as follows:

Level 0 - Errors only (`DEBUG OFF`, or `DEBUG 0`) - only msSetError() calls are logged to `MS_ERORFILE`. No msDebug() output at all. This is the default.

Level 1 - Errors and Notices (`DEBUG ON`, or `DEBUG 1`) - Level 0 plus msDebug() warnings about common pitfalls, failed assertions or non-fatal error situations (e.g. missing or invalid values for some parameters, missing shapefiles in tileindex, timeout error from remote WMS/WFS servers, etc.)

Level 2 - Map Tuning (`DEBUG 2`) - Level 1 plus notices and timing information useful for tuning mapfiles and applications. this is the recommended minimal debugging level.

Level 3 - Verbose Debug (`DEBUG 3`) - Level 2 plus some debug output useful in troubleshooting problems such as WMS connection URLs being called, database connection calls, etc.

Level 4 - Very Verbose Debug (`DEBUG 4`) - Level 3 plus even more details...

Level 5 - Very Very Verbose Debug (`DEBUG 5`) - Level 4 plus any msDebug() output that might be more useful to developers than to users.

4.4. Studio Logging

The name of the .log files and the type of logging in Studio is controlled by the log .config files, typically in the D:\Astun\iShare[GIS]\5.4\Studio folder, corresponding to the log files detailed earlier. If you open these in a text editor, you will see that there is an `<appender>` section which takes care of the name and location of the log file together, with the process of rolling over files by size or date. In the example below when, the log file reaches 100000 in size, a new file will be generated and a maximum of 1000 log files will be kept.

```
<appender name="RollingFileAppender"
type="log4net.Appender.RollingFileAppender">

<param name="File" value="logs\Studio.log" />

<param name="AppendToFile" value="true" />

<param name="MaxSizeRollBackups" value="10" />

<param name="MaximumFileSize" value="100000" />

<param name="RollingStyle" value="Size" />
```

```
<param name="StaticLogFileName" value="true" />

<layout type="log4net.Layout.PatternLayout">

    <param name="ConversionPattern" value="%d %-5p %c %m%n" />

</layout>

</appender>
```

Note: The file suffixed .log will always be the current log file. Any log files which have been "rolled over" will be renamed LogfileName.n where n is an incrementing number with the largest number being the oldest log file.

Following the `<appender>` section you will see various `<logger>` sections controlling the name, level and appender-ref for different areas e.g.

```
<logger name="Studio">

    <level value="INFO" />

    <appender-ref ref="RollingFileAppender" />

</logger>
```

The level value can be:

ALL | DEBUG | INFO | WARN | ERROR | FATAL | OFF

Where ALL is the most verbose down to OFF where no logging is performed.

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An Astun Technology iShare Training Module

Code	ISG-2.56
Title	iShare GIS for Administrators
Description	Topics specific to iShare GIS, including Roles and Profiles, editing, annotations.
Required Software	iShare GIS 5.6.0
Target Audience	iShare Administrators
Pre-requisites	iShare for Administrators
Duration	2 hours
Version	1.0
Updated	28 Sep 2017
Updated by	Kim Stimpson
Status	Complete

1. Introduction

This module aims to supplement the *iShare for Administrators* module with content that is specific to iShare GIS. It will normally be undertaken in conjunction with that module, and also assumes that trainees have taken the *iShare GIS for Users* module. The URL for the application on Astun's standard training instances is http://localhost/iShareGISLIVE.Web/iSharegis.aspx.

2. Managing User Access Using Roles

iShare GIS can be used to control the display of information that is sensitive, or which requires filtering from general use. For example locations of domestic abuse crimes should not be widely available, and detailed planning applications should only be available to those in the planning department. The mechanism which iShare uses to do this is *Roles*.

- Roles can be allocated to map sources, with the result that those map sources are only visible to users who have the required Role.
- You can also link a Role to an individual OGC layer to allow users with the Role to edit the layer.
- Allocation of Roles made by linking the Role to local (to the server) Windows Groups.
- Members of the groups then have the Roles which are linked to the group.

For example, if you wanted to allow only members of the Planning team to view planning data, you would:

- In iShare, create a 'Planning' map source and the required layers within it
- In Windows, create a local Windows Group, e.g. 'Planning Users', and add to it the Windows users or groups who need access to the data
- In iShare, create a role e.g. 'Planning Users', and link it to the Windows Group 'Planning Users'
- In iShare, allocate the 'Planning Users' role to the Planning map source
- To allow users to edit layers in Planning, you would add the Role to the specific layers

In the example below:

- Joe, Mary and Bill have access to Map Source 2
- Only Bill has access to Map Source 1
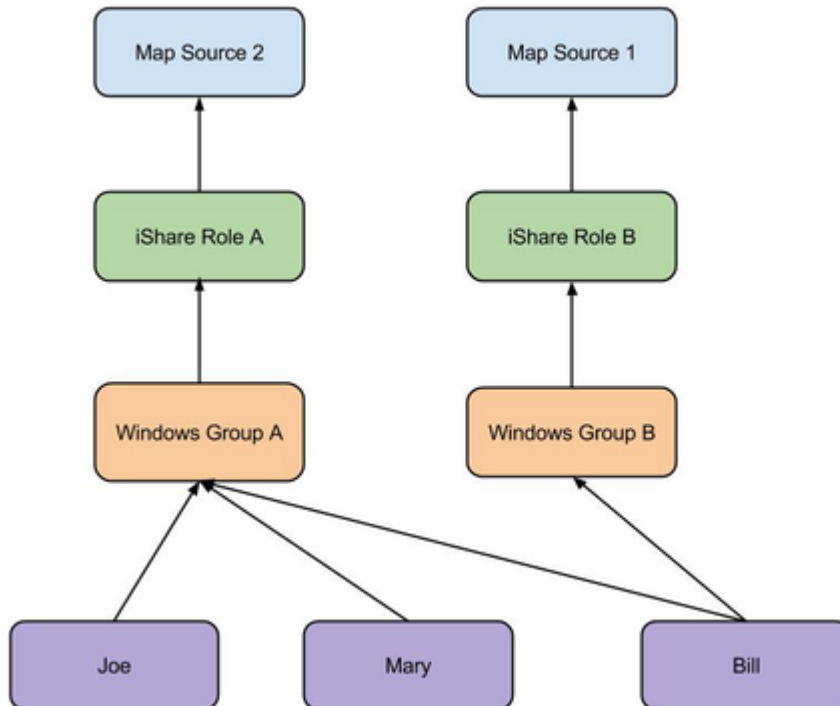
Note that:

- A map source can be accessible by more than one Role
- A Role can only be linked to one Windows Group

There are some important points to understand when managing Roles:

- iShare uses Windows Active Directory (or an equivalant authentication mechanism) to determine group membership, and hence to determine whether to allow the current user access to map sources
- In the iShare GIS web interface, map sources correspond to **Profiles**
- If no Roles are allocated to a map source, it will be visible to all users
- As soon as one or move Roles are allocated to a map source, it is only visible to users with those Roles
- The default map source should not have Roles allocated to it
- Members of the iShareAdmin group will be able to see all map sources
- Default Windows Groups such as **Administrators**, **Guests**, **Remote Desktop Users**, etc. **should n ot** be used as bases for iShare Roles. This is because Microsoft .NET may not list an Active Directory User as belonging to these Groups on the iShare Web Service server but only as belonging to them on the Domain. This means that the user will not belong to the Role(s) in question, as we rely on the fact that they are in the Local Groups to authorize them.

Note: It is important to develop a detailed plan for data management and user access before creating map sources, Roles and Windows groups - once they are all in place it will be time-consuming to revise them.

2.1. The Roles Editor

Once you have created Windows Groups you can apply these to individual iShare Roles using the Studio Roles Editor, which is the last item in the Studio navigation tree.
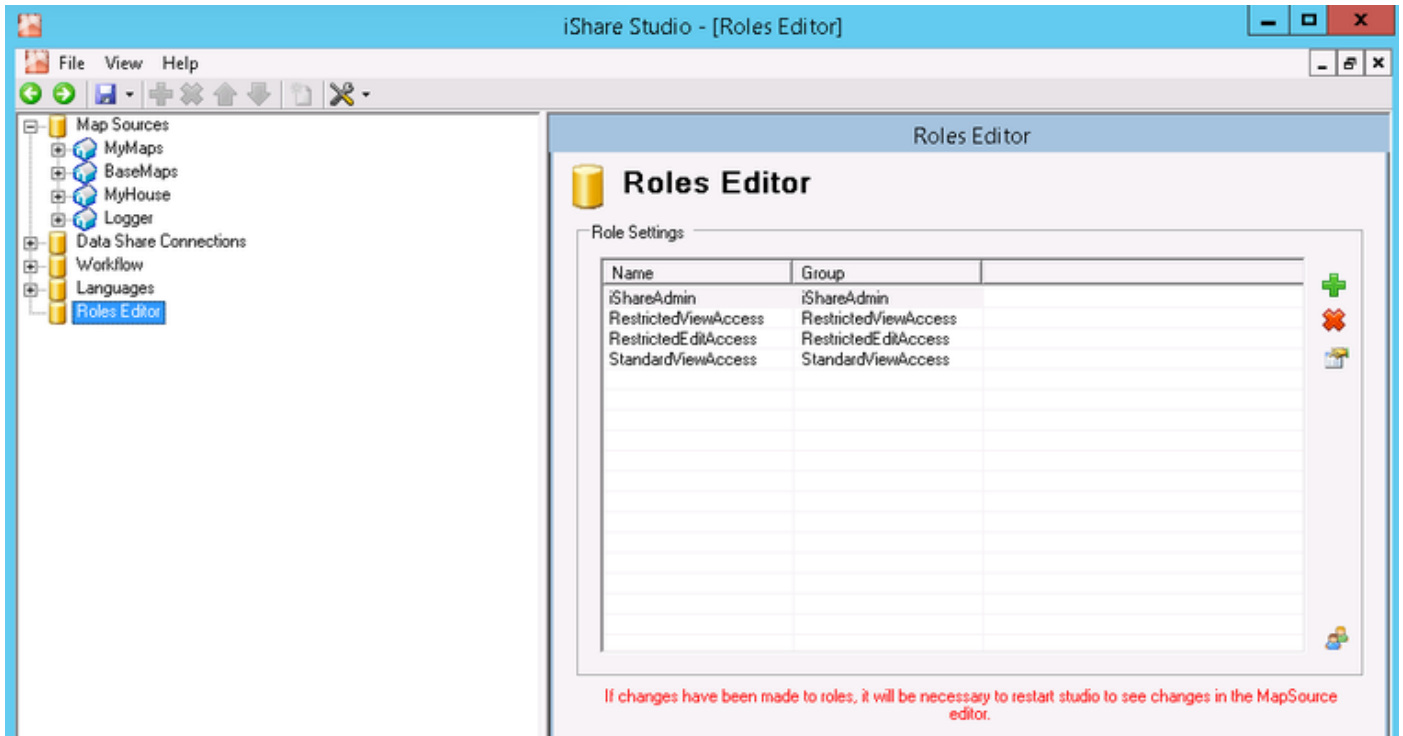
You can use the **Add** 🟢 or **Remove** ❌ buttons to add and remove Windows Groups from the **Roles Editor** or click the **Edit** icon 📝 to amend existing details.
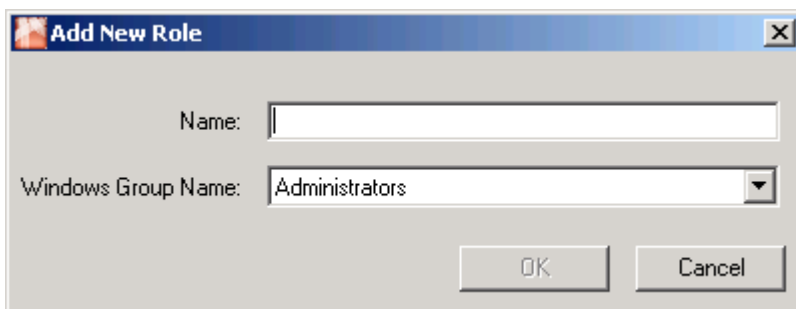
Add a new role named **Test** and assign the Windows Group **iShareAdmin** to it.

Make sure that you **Save** all your changes in Studio by clicking the **Save** button. You will also need to close Studio and re-open in order to see any new roles under the Map Source **Roles** node. Once you have created your iShare Roles you can then apply them to individual **Map Sources** and **OGC Map Layers**.

2.2. Roles Demonstration

We will now use the training instance to demonstrate how Roles work in practice.

Local Users for testing Roles

User	Group	Password	Notes

|			
StandardViewUser	StandardViewAccess	`WillWorseHarvestNotebook8`	User has no access to restricted mapsources.
RestrictedViewUser	RestrictedViewAccess	`CupSpringEasySportFemale5`	User has access to all restricted mapsources.
RestrictedEditUser	RestrictedEditAccess	`UnitDoctorDescentPlease5`	User has editing rights to all OGC layers in restricted mapsources.

1. Run iShare GIS as the above users.
   1. **StandardViewUser** only has access to the default mapsource.
   2. **RestrictedViewUser** has access to all restricted mapsources but no editing rights.
   3. **RestrictedEditUser** has editing rights to all OGC Layers in restricted mapsources.
2. In Studio remove permissions on Layers and mapsources and see how this reflected in the application.
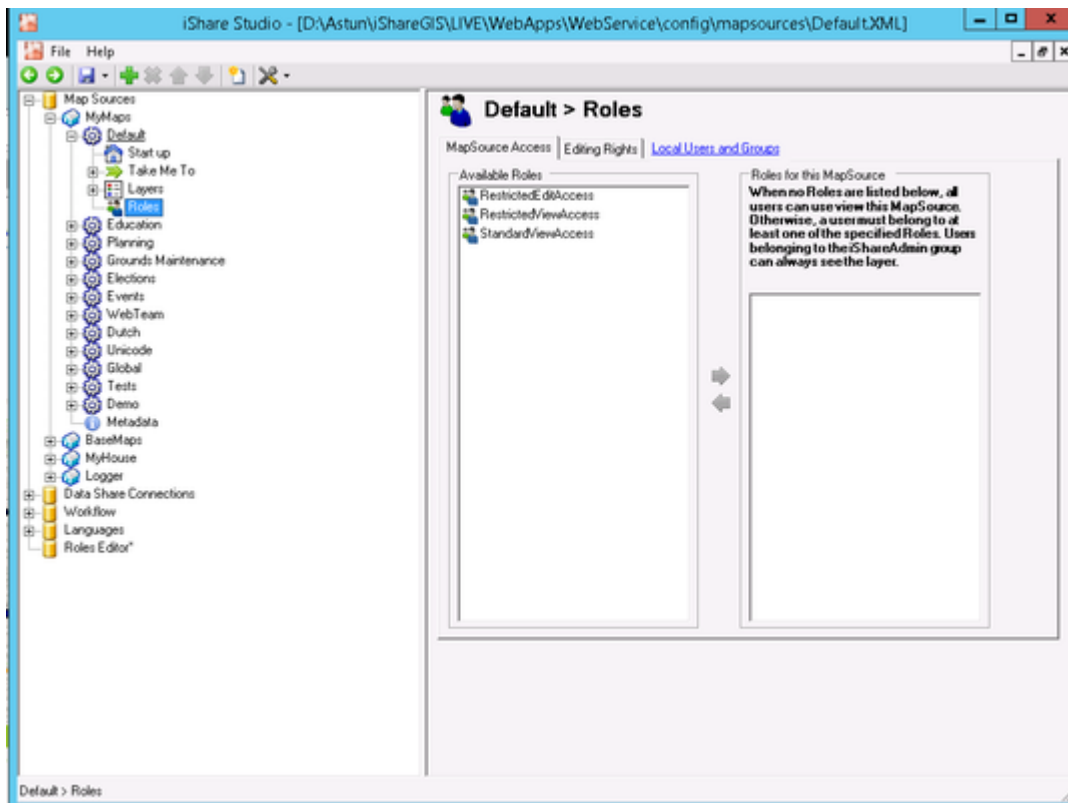
3. Refresh the browser and IIS Application Pools etc. to clear any caching if needs be (though this shouldn't be necessary).
4. Examine the local Users and Groups dialog. Note that Domain groups can be members of local groups.

## 2.3. Editing Features in Layers

Layers (OGC but not Classic) can be edited by end users using the iShare GIS editing tools. This allows users to edit data directly in the database table which the OGC Layer references.

Editing permissions are controlled by iShare Roles. For a member of a Role to be able to edit an OGC layer:

- a Role which they are a member of needs to have access to the Profile (map source) which the layer is in, and
- the Role needs to be allocated to the layer in **Layer Roles**.

To set this up:

1. Go to the **Roles** node for the Events map source and select the **Editing Rights** tab.
2. Now select the **FestivalAmenities** layer and then select the **RestrictedEditAccess** Role.
3. Save your changes.
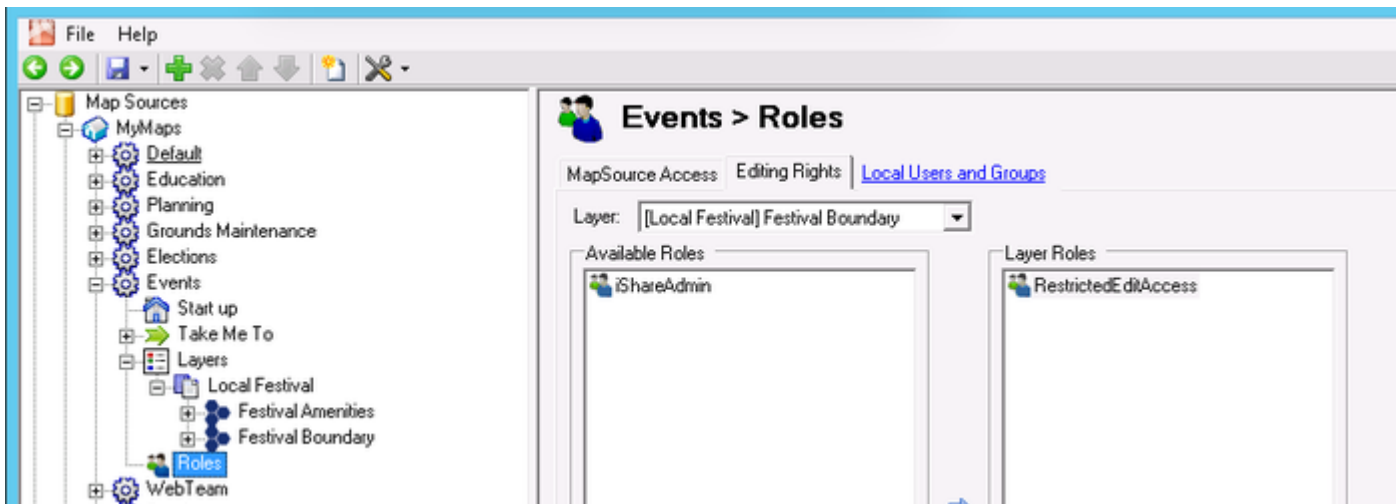
Once a layer has been associated with a Role, all members of the role will be able to edit the layer, and the 'pencil' icon (see below) will be present in the layer's sub-menu in the iShare GIS web interface legend for the layer. The festival boundary layer is defined by sql that contains a where clause which makes it unavailable for editing.

1. Open the iShare GIS application, select the **Events** Profile (*if this is not displayed then you need to open Studio, click on the **MyMaps** node, select the **Events** Map Source and untick the **Hidden** check box*)
2. Expand the **Local Festival** Layer Group, expand the **Actions** for the **Festival Amenities** Layer and click on the pencil icon to edit features for the layer.
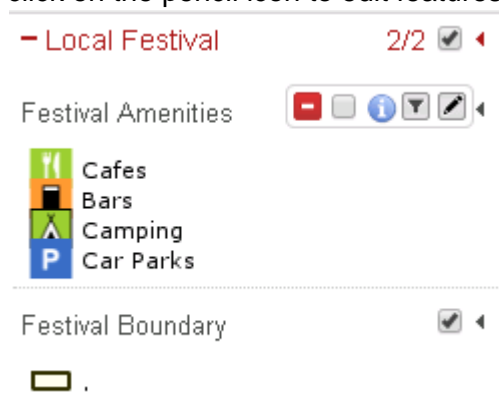
3. You will see a **Select feature** button - try this on the Festival Amenities layer and change and save it (hint: type "cafe" for the icon).
4. Click the **New feature** button to add a new Amenity.

3. Annotations

Annotations allow users to add their own layers, to style them, and to share them with others. This is discussed in detail in the *iShare GIS for Users* module.

There may be occasions when Annotation layers need to be transferred to normal iShare layers, in order to formally publish them for example, or to allow them to be edited in an external programme. This can be done by accessing the tables which hold the annotations in the *annotations* schema of the iShare GIS database - the tables are:

- features
- layers
- layers_access
- layers_styles

These tables can be exported so that they can be used in GIS software or elsewhere in iShare, using SQL which Astun can provide.

4. Creating your own Print Template

Although iShare GIS comes with default Print Templates it is often the case that you would want to create your own bespoke template. You would normally start by copying one of the supplied templates which may be found in the **\Web\print** folder before changing / renaming to suit your requirements.

Open the Print Template in a text editor and then we will explain what the different sections control.

4.1. Template Settings

The code below overrides the default print settings. It can be added inside a script block in the head of a print template. Settings can be removed as required. Open **A3-portrait.html** to see this in action.

```
//Leave the properties which you want to change, you can safely remove
the rest
var defaultSettings = {
    'marginTop' : 10, //mm
    'marginRight' : 10, //mm
    'marginBottom' : 10, //mm
    'marginLeft' : 10, //mm
    'pageSize' : 'A4', //full list
http://doc.trolltech.com/4.6/qprinter.html#PageSize-enum
    'orientation' : 'portrait', //Possible values 'landscape' &
'portrait'
    'headerHeight' : 0, //mm
    'headerPadding' : 0, //mm
    'footerHeight' : 15, //mm
    'footerPadding' : 1 //mm
    'scales' : [ 250000, 125000, 50000, 25000, 10000, 5000, 2500, 1250,
1000, 500, 250, 125 ]
}
```

Allowed Page Sizes

For the full list of allowed page sizes please see Creating your own Print Template in the on-line iShare documentation.

Scales

The '**scales**' option above shows the default scales and as such may be removed altogether. To customise your own range of scales simply specify your own entries for the parameter. If a user enters a scale that is outside the defined range then the scale will default to the maximum or minimum entry as required.

When the map is selected the current scale will automatically be added to the selection as (Original 1:nnnn).

1. Due to some restrictions adjusting the height of the map element to correctly position it in the selected page size; you will need to adjust the header and footer height or padding using these options. PLEASE DO NOT USE CSS TO ADJUST HEIGHT OR PADDING OF HEADER AND FOOTER.
2. At present the page size and print scale only generate accurate results when defined in **Milli meters**, as above, and not pixels etc.

4.2. JavaScript

```
<script type="text/javascript"
src="../js/lib/prototype-1.6.0.3.js"></script>
        <script type="text/javascript"
src="../FileIncluderJS.aspx"></script>
        <script>Astun.JS.IncludeJS('print');</script>
```

No JavaScript files should be removed as the maps and will not work properly.

4.3. Defining a Style Sheet

```
<link type="text/css" rel="stylesheet"
href="css/templates/astun-A4-common.css" />
```

We have provided one editable style sheet **astun-A4-common.css** with iShare which may be customised. We would suggest that you copy the supplied css before making your changes.

If you wish to use a different style sheet then please change this entry to reflect the style sheet you wish to use.

4.4. HTML Structure

Example

```
<div id="wrapper">
    <div id="header"></div>
    <div id="mapWrapper">
        <div id="map"></div>
        <div id="atLegends" class="atBottomRight"></div><!-- other
possible css classes: atBottomLeft, atTopRight, atTopLeft (you can use 1
at a time) -->
    </div>
    <div id="footer">
        <div id="atGenInfo">
            <h1 id="atPageTitle" class="isharemaps-edit-inline">iShare
printing</h1>
            <p id="scale">Scale: 1:<span
id="isharemaps-scale">undefined</span></p>
            <p class="printinfo">Printed on: <span
id="isharemaps-print-date"></span></p>
        </div>
        <div id="atCompanyDetails">
            <img src="images/print-logo.jpg" id="logo" />
            <div id="copyright">&copy; Astun Technology Ltd</div>
        </div>
    </div>
</div>
```

You can change the order of the **header** or **footer**; change the position of the **map** element; add extra **css** classes to the elements to control using css.

> Please <u>do not</u> change or remove the the 'IDs' or 'CLASS' from any element as this can create problems.

Changing the Logo & Copyright

You may also change the **logo** but make sure the height of the logo image does not exceed the height of the footer/header provided in the **Template Settings** and of course the **copyright text**. Also please use **.png** or **.jpg** for the logo images, .gif images will not work.

> The PDF generation does not support .gif images.

Using the iShare predefined Selectors

There are currently four iShare selectors that you may use within your print template. These selectors may be used as many times as required in the template, we have used three of these in the following example.

iShare printing

Scale: 1:14173

Printed on: 12/11/2015 at 15:38 PM

Selector	Description
isharemaps-edit-inline	This displays an editable box where the user can type any information they require to be printed. This is designed to be used in line with other text or on its own. Here we have pre-populated the entry with iShare printing" but the user will be able to change this.
isharemaps-edit-block	This displays an editable block designed to be used on block elements such as paragraphs.
isharemaps-print-date	This displays the current date
isharemaps-scale	This displays the currently selected scale for the map

Displaying a Legend

A **Display Legend** check box will be included in the header of the default templates e.g.

If you wish to remove the **Legend** from the Print template then simply remove the **atLegends div** e.g.
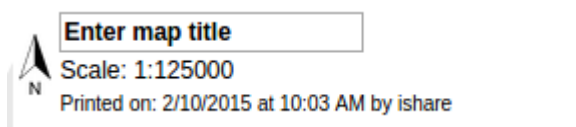
```
<div id="atLegends" class="atBottomRight"></div><!-- other possible css
classes: atBottomLeft, atTopRight, atTopLeft (you can use 1 at a time)
-->
    </div>
```

For large legends a style rule may need to be added to the end of the head element in the template html file.

```
<style type="text/css">#mapWrapper {
    overflow:hidden;
 }
</style>
```

Print the User Name on the PDF output

You may add the user account to the PDF output from iShare GIS e.g.


Where **ishare** is the user name.

In order for this to happen you need to do the following:

- Save printusername.js into the **Web/custom/js** folder.

- Add the following line to the template.html immediately before the **</head>** entry.

```
<script type="text/javascript"
src="../custom/js/printusername.js"></script>
```

Adding a North Arrow

One way of adding a North Arrow is to add the North Arrow image, along with the existing Page Title, Scale and Print information into a table e.g.
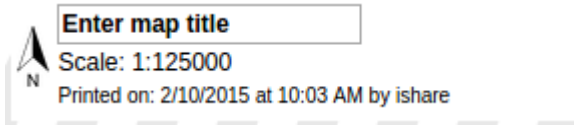
This is what the code would look like:

Adding a North Arrow

```
<table border="0">
 <tr><td>
  <img src="images/northarrow.png" height="30">
 </td><td>
  <h1 id="atPageTitle" class="isharemaps-edit-inline">Enter map title</h1>
  <p id="scale">Scale: 1:<span id="isharemaps-scale">undefined</span></p>
  <p class="printinfo" style="font-size: 10px">Printed on: <span id="isharemaps-print-date"></span></p>
 </td></tr>
</table>
```