

Maps 1900: Mobile Atlas Creator (MOBAC): Notes on Creating Atlases (Custom Maps)

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These notes should be of assistance to someone wanting an introduction to the production of maps for use on GPS enabled devices, such as smartphones and tablets, using the Mobile Atlas Creator software (MOBAC).

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1. Introduction

It is assumed that the map source to be used to create a map for the user's device is already available to the MOBAC software. Some map sources derived from the OpenStreetMap project and other Web Map Tile Services are automatically made available for use when the software is installed. However, it is possible to add so-called "custom sources" and these includes the excellent 25 inch to the mile historic Ordnance Survey mapping which is a particularly useful resource.

In addition it is possible to convert map tile sets generated by the user into an Atlas using MOBAC. However, this latter technique is beyond the scope of this file note (see Section 6: Further Information).

Section 2 gives the steps necessary to create a new Atlas and more information on selecting areas is provided in Section 3. The creation of custom map sources, essential for using the National Library of Scotland's map images, is described in Section 4. Two useful features of the program are "Profiles" and "Bookmarks" which are described in Section 5. A select list of links to further information is provided in Section 6. Finally, a reference guide to all significant settings and controls is provided in the Appendix.

These notes refer to MOBAC version 2. 1. 3a (program revision 2398). Please note: Changes to both open source and proprietary software tools and applications are regularly made and consequently, these notes may not reflect recent changes in the software.

2. To Create an Atlas (Custom Map)

For more information about particular settings or controls, see the Appendix.

- (1) Open the program and click on "**Atlas**" in the top menu and then click on "New Atlas" to open the "**Settings for new Atlas**" panel.

Provide a suitable name in the "**Name of the new atlas:**" box e.g. "Stroud 1901".

Click on the required format in the list under the heading "**Please select the desired atlas format**" e.g. "MBTiles SQLite".

- (2) In the **Map Source** Panel: (top left)
Click on map source to use from list displayed in panel
e.g. "OpenStreetMap 4UMaps.eu". (a supplied map source)
or "OS 25 inch Gloucestershire 2nd Edition 1900s" (example of a custom map)

This list will contain both map sources that come with the MOBAC installation (e.g. OpenStreetMap 4UMaps.eu) and map sources added by the user as described in section 4 (e.g. OS 25 inch Gloucestershire 2nd Edition 1900s)

- (3) In the **Zoom levels** Panel:
Select the required output zoom level(s) in the Atlas by clicking in the relevant check boxes.
e.g. levels 14, 15, 16, 17 and 18.

- (4) In the **Atlas Content** Panel: (now displaying new Atlas name and output format).
Select the required area on the map display and provide a name for this layer in **"Name"** box
e.g. Name: "Layer 1".
A name must be given but it can be anything.

Guidance on selecting areas is given in Section 3.

- (5) Click on **"Add selection"**.

This layer name will be shown under the Atlas name in the "Atlas Content:" panel.
Additional layers may be added in the same way to build up the required area.

- (6) In the **Layer settings: custom tile processing** Panel:
Click in the check box: **"Recreate/adjust map tiles (CPU intensive)"** and select the desired tile output file format (below "Width" and "Height").

Ensure **"Width:"** and **"Height:"** are both set to 256 (pixels).

Tile format: e.g. (recommended) PNG 256 Colours (8 bit).
Leave the box unchecked if you require PNG (24 bit) output.

- (7) Finally, create the Atlas by clicking on the **"Create Atlas:"** button.

The Atlas is saved in the directory specified in Tools => Settings => Directories: or if this has not been set up it will be saved in the Atlases directory in the MOBAC installation directory.

3. Selection of the area covered by the Atlas (Custom Map)

- (1) **Click on map source to use** from list displayed in the "Map source:" panel.

Use the zoom and pan controls to position the map source so that the full extent of the area to be covered by the new Atlas is visible. The zoom control is the slider in the top right of the map panel or alternatively, the mouse wheel may be used. To move the map (pan) it can be dragged in any direction using the mouse with the **right** button pressed down.

In some cases it is convenient to divide the required map area into two or more sections and add each section in turn as described in Section 2 (4). The map sections do not have to be contiguous.

When using a given map source for the first time, it may be difficult to position it so it appears in

the map panel. A solution is to first select the "OpenStreetMap 4UMaps.eu" map source which covers the whole of the Europe.

Position the map so that the area of interest is roughly at the centre of the map panel. Then switch the map source to the actual source required for the new Atlas which should now be visible in the map panel.

Once the map source of interest has been correctly positioned it may be useful to create a 'bookmark' so that this view can be returned to in the future (see Section 5).

- (2) Left click and drag the mouse to highlight the area to be included in the new Atlas. The selected area will turn pink. (Click outside the area to deselect and start again).

4. Creating a Custom Map Source

Each custom map source added to Mobile Atlas Creator (MOBAC) requires a corresponding XML file to be included in the "mapsources" in the installation folder. The file contains key information such as the URL of the map source and the title that will appear in the list of map sources in Mobile Atlas Creator.

An excellent source of historic Ordnance Survey mapping is the Map Images website of the National Library of Scotland (NLS) (<https://maps.nls.uk/>). NLS now permit the re-use of many of their 25 inch to the mile (1:2500) georeferenced map layers for personal purposes. At the time of writing information on how to access these layers is available at <https://maps.nls.uk/guides/georeferencing/layers-urls/>

One approach is to use the NLS [Explore georeferenced maps viewer](#) to locate the required map and then click on the dark blue "Overlay" tab in the footer for the chosen map. This will display a pop-up box with links to the home pages of the mapping for the relevant county. On the home page click on the "XYZ" tab and then copy the URL that is displayed in the box immediately below the "XYZ" label.

For example the URL of the map layer second edition mapping in the series "OS 25 Inch, 1892-1914" is

https://mapseries-tilesets.s3.amazonaws.com/25_inch/gloucester2nd/{z}/{x}/{y}.png.

A suitable title to appear to identify this map source in the MOBAC program is

"OS 25 inch Gloucestershire 2nd Edition 1900s".

and file name for the XML file to be included in the "mapsources" folder might be called

nls_glos_second_ed_20220411.xml.

The complete XML file takes the form:-

```
<customMapSource>
<name>OS 25 inch Gloucestershire 2nd Edition 1900s</name>
<minZoom>2</minZoom>
<maxZoom>18</maxZoom>
<tileType>png</tileType>
<tileUpdate>IfNoneMatch</tileUpdate>
<url>https://mapseries-tilesets.s3.amazonaws.com/25_inch/gloucester2nd/{z}/{x}/{y}.png</url>
<backgroundColor>#000000</backgroundColor>
</customMapSource>
```

N.B. MOBAC requires the "dummy" arguments, $\{z\}/\{x\}/\{y\}$, in the URL obtained from the NLS website as described above to be modified to the form $\{\$z\}/\{\$x\}/\{\$y\}$, in the URL entry in the XML file that goes in the "mapsources" folder. This modification can be seen in the above sample XML file.

After copying the XML file to the "mapsources" folder the Mobile Atlas Creator program should be restarted and the new source will appear in the list of custom sources.

5. Using Profiles and Bookmarks

5.1 Profiles

It is possible to automate the generation of Atlases. A small XML file called a "profile" is needed for each map and must contain the information shown below. A batch job can then be setup to run Mobile Atlas Creator in command line mode with these profiles and the corresponding maps will be generated. (use the link in Section 6 for more information about running Mobile Atlas Creator in command line mode).

A convenient way of creating a template as the basis for the creation of a set of profiles is to generate the first of the maps manually and then save the profile (see Appendix). A small computer program can be used to generate the set of profiles based on this template and substituting the values for "Atlas name" and the tile coordinates with appropriate values for each Atlas.

Profiles are saved by MOBAC in the installation directory and should not be moved. User created profiles must also be stored there.

Example values stored in a profile are shown below:-

Atlas version	[e.g. 1]
Atlas name	[e.g. lyppng15-18]
Output format,	[e.g. OSMAND_SQLite]
Map maximum tile coordinate	[e.g. 4145919/2775295 (m)]
Map minimum tile coordinate	[e.g. 4145408/2774784 (m)]
Map source	[e.g. 25 inch Gloucestershire 1900s]
Zoom level	[e.g. 16]
Layer name	[e.g. Layer 16]
Map tile format	[e.g. PNG8Bit]
Tile height	[256]
Tile width	[256]

5.2 Bookmarks

Bookmarks are a convenient way of saving the current view so it can be easily restored later.

A saved "bookmark" contains the following information:-

Map source (e.g. OS 25 inch Gloucestershire 2nd Edition 1900s)
Map centre lat/lon e.g. lat=51.6861 lon=-2.2468
Zoom level (e.g. zoom = 15)
Grid zoom level (e.g. Grid zoom 17) or disabled

WGS 84 grid (whether displayed or not)
WGS 84 grid spacing (if selected)

To create a bookmark set up the map view you want to store and click on the "**Bookmarks**" item in the top menu. This will reveal the sub-menu with options "**Save current view**" and "**Manage Bookmarks**" and a list of saved bookmarks.

Click on "**Save current view**". A dialog box appears with default name for bookmark e.g.

OS 25 inch Gloucestershire 2nd Edition 1900s at lat=51.686 lon=-2.246 (zoom = 15)
i.e. [Map source] [Centre lat/lon] [Zoom]

It is suggested that additional information is provided by the user in the name to aid identifying the bookmark later e.g. add location and date. MOBAC will accommodate this extra length in bookmark name.

Bookmarks are stored in the **settings.xml** file in the form (e.g):-

```
<bookmark zoom="15" name="OS 25 inch Gloucestershire 2nd Edition 1900s at lat=51.728 lon=-2.456 (zoom = 15)" mapSource="OS 25 inch Gloucestershire 2nd Edition 1900s" lat="51.728277500370886" lon="-2.4561309814453125"/>
```

A bookmark does not include selection limits. These are set when the bookmark is used to set up the "map view" for a new custom map.

To delete a bookmark use: Bookmarks => Manage Bookmarks

This will list all the bookmarks which can be selected and then deleted by clicking the "Delete" button.

To load one of the saved Bookmarks, click on "**Bookmarks**" in the top menu and then click on the required bookmark in the list that is displayed.

6. Further information

MOBAC website: <https://mobac.sourceforge.io/>

MOBAC website FAQ: <https://mobac.sourceforge.io/faq.html>

Quick start guide to MOBAC (2012): <https://mobac.sourceforge.io/quickstart/index.htm>

Mobile Atlas Creator Wiki: https://mobac.sourceforge.io/wiki/index.php/Main_Page

Gives details of using custom map sources, local map sources (tiles from the local file-system) and MOBAC command-line options.

Disclaimer

Please take suitable care if you use these apps in the field for the purposes described in these notes, as clearly, we accept no liability for any loss or damage, that might occur.

Map sources config:

This tab allows you to update the map pack which includes the available map sources. Moreover you can input login data for premium map sources.

Map sources:

You can enable and disable individual map sources. All available maps are displayed and can be activated or deactivated by using the blue arrows. The order in the selection box can be adjusted (by default alphabetical).

Tile update:

Set default expiry times and limits on max/min expiry times. If set to "Never" the tiles will not be downloaded again.

Tile store:

This tab allows local storage of map data to be enabled and disabled. Further it provides information about the disk space currently used.

Map size:

The maximum size of individual map layers may be specified. Default 65536 pixels width and height.

Directories:

This option allows the output directory, which is used to store the created Atlases to be defined.

Network:

Not of interest here.

Paper Atlas:

These settings concern only the Atlas formats "Paper Atlas (PDF)" and "Paper Atlas (PNG)" and allow adjusting the appearance [margins, grids, orientation and resolution].

Show/hide left panel

This gives access to various controls and settings (see below).

Show/hide GPX panel

This gives access to the GPX functions.

Help

Show Readme:

Displays detailed "Help file".

How to use preview map:

List of keyboard and mouse commands.

Licences:

Details of permitted use of the software.

About:

Program version e.g. 2.1.1a 2398.

Left Hand Panel (Various settings)

Map Source: [displays current selection]

Drop down list of maps sources including custom map sources that have been added by user.
Click on one of the maps sources to select.

Zoom Levels in the output Atlas:

Check Boxes displayed for potentially 0-22 zoom levels but the actual levels offered will depend on the particular map source.

Tick the relevant check boxes to obtain output in the Atlas for these zoom levels.

Atlas Content

Top line of tree structure displays the name of the current Atlas under creation.

Below this layers are displayed as selections (map areas) that have been added to the Atlas.

Selections are added by highlighting the required area on the map and the clicking on the "Add selection" button.

The "New" button to the left of the "Add selection" button opens the create new Atlas dialogue.

Name:

Type here the name for a new layer formed from the selection on the map.

Saved Profiles

Click to display a drop down list of saved profiles. Buttons are visible to "Delete", "Save" and "Load".

"Create Atlas" button.

Click to create Atlas from the current settings.

Layer settings: (custom tile processing)

Check box: Recreate/adjust map tiles (CPU intensive).

Width: [256px] Height@ [256px].

Tile Format: PNG (24 bit); PNG 256 Colours (8 bit); PNG 16 Colours (4 bit)

JPEG – quality 100; JPEG – quality 99; JPEG – quality 95; JPEG – quality 90; JPEG – quality 85; JPEG – quality 80; JPEG – quality 70; JPEG – quality 60; JPEG – quality 50.

Map source tile store coverage

Zoom level: Selectable over range included in map source [max 0-22].

Layer: this refers to the current map source.

"Show coverage" and "Hide coverage"

Click buttons to display or hide which tiles for the area on the screen have been already downloaded to the tile store. This indicates the tile store coverage for the current map source, the selected zoom level and the current visible map region.

Green regions mean the relevant tiles are present in the cache and grey regions mean that these tiles have not been downloaded.

Bold red crosses mean that the display is outside the declared limits of this particular map.

"Hide coverage" removes tile store coverage display.

Selection coordinates (min/max):

Format (Fmt) Dropdown selects how coordinates (degrees) are formatted.

The four boxes show the north, east, south and west extents for the current selection.

Coordinates may be entered manually into these boxes to set the selected area.

"Select entered coordinates":

Click to use the coordinates entered into the boxes (see above).

Map Panel (main window)

[In bottom left hand corner] Zoom level slider (potentially 0-22)

Drop down to display (in red) grid at a specified zoom level (can also disable this grid)

Check box to include the WGS 84 grid (in blue)

[In bottom left hand corner] Scale is shown in a yellow box.

Right Hand Panel (GPX panel)

It is possible to create 'routes' here which may be used to select map areas (see **Selection** in top menu item).