THALES
Building a future we can all trust

Map File Preparation Application (MFPA)

An Engineering tool for use by me

www.thalesgroup.com

Why

> I am a Thales Technical Expert in Geographic Information Systems (GIS).

> I am often asked to provide maps for various projects.

> They will give me a Latitude and Longitude and say “Give me what you have got”.

> I have many sources of map data spread around on my laptop, Hard Disks, on the internet…

> It always takes me several attempts to find maps that are in the area requested.

Requirement

- Create a web application to identify and move or copy files that have geographic content which is crossed or contained in an area defined by a user to a well defined directory structure.
- The application should have a User Interface with a simple map.
- The application should be branded in the Thales style, you will be provided with colours, fonts, UI component look and feel. You will be provided with a PDF. You can browse the websites here quantum.thalesdigital.io.

Example Geospatial files I have to deal with

- GeoTiff (*.tif)
- DTED (*.dt0, *.dt1, *.dt2)
- Shapefiles (*.shp)

A Simple Use Case

> I am going to do the Wildboar Chase (Mountain Bike Charity Ride).

- See Wild Boar Chase and Humbug Chase Mountain Bike rides

> I want to prepare a map for my ride.

> I know I have terrain data, ordnance survey open data, satellite imagery, areal imagery and gpx files of the various routes.

> The area is around the Forest of Dean top left is Longitude -2.7665, Latitude 51.933, bottom right is Longitude -2.364, Latitude 51.623.

> I have some data on my home desktop e:\GeoData and I have some data on two hard disks, which I connect to my desktop.

How I do it at the moment

> I fire up one of my GIS tools, in this case Q-GIS (Welcome to the QGIS project!).

> I Create a directory Wildboar 2023 structure.

> I copy different resolutions of terrain.

> I copy Aerial Imagery.

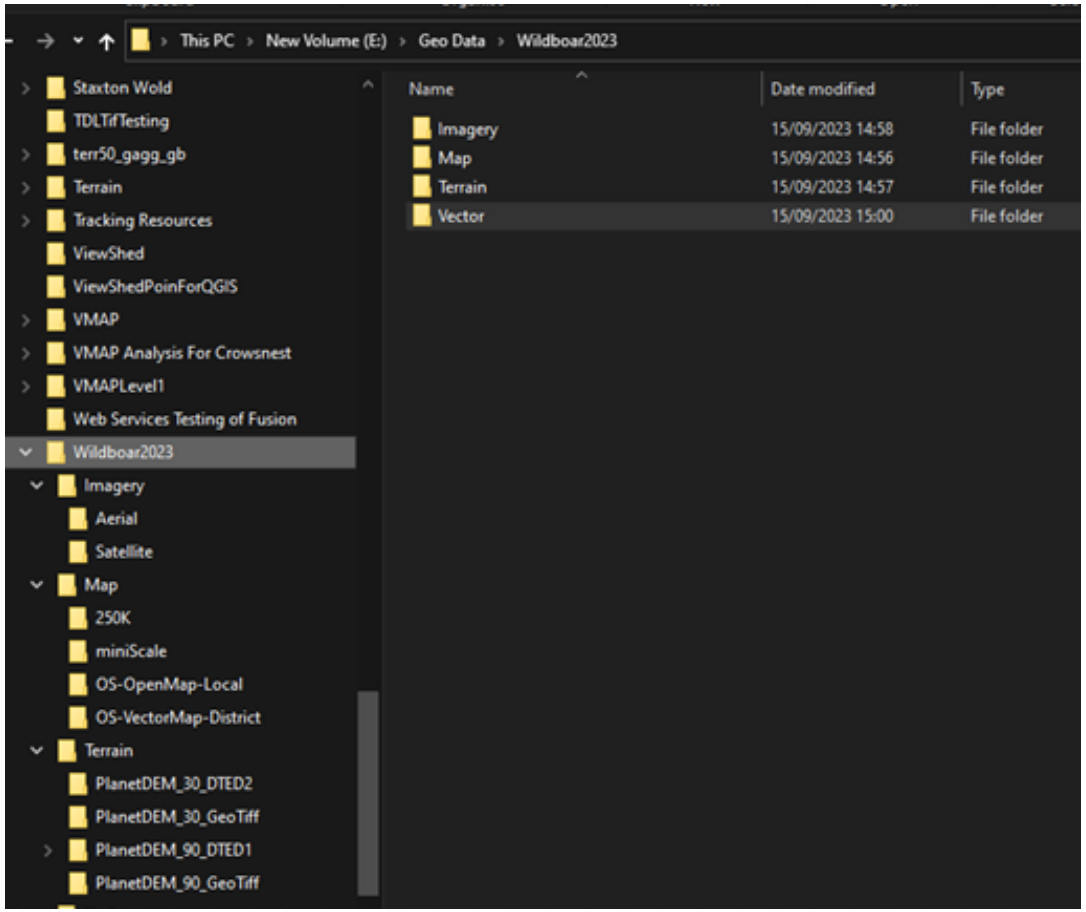
> I copy Satellite Imagery.

> I copy the Ordnance Survey OpenData.

- miniScale, 250k,OpenMap-Local,VectorMap-District

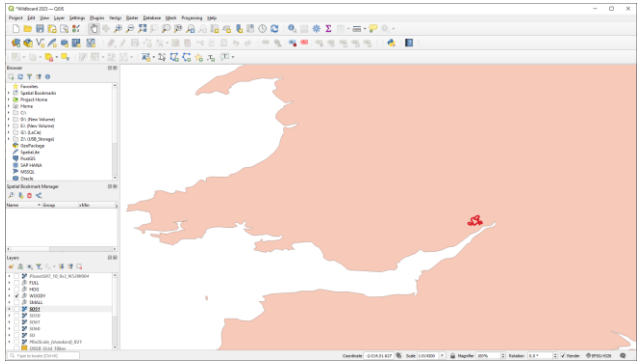
> I copy the gpx files.

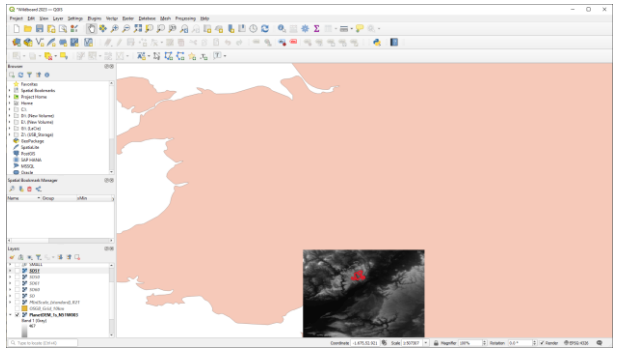
> I create a boundary box and copy that to.

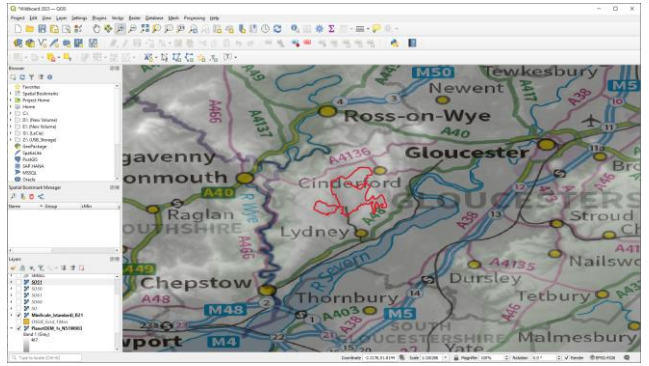


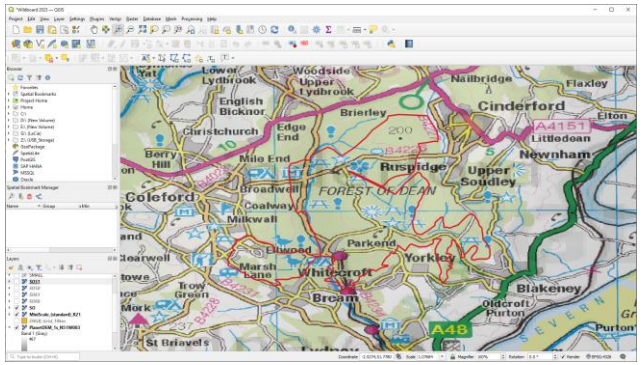
REF xxxxxxxxxxxx rev xxx – date Name of the company / Template: 87211168-DOC-GRP-EN-006

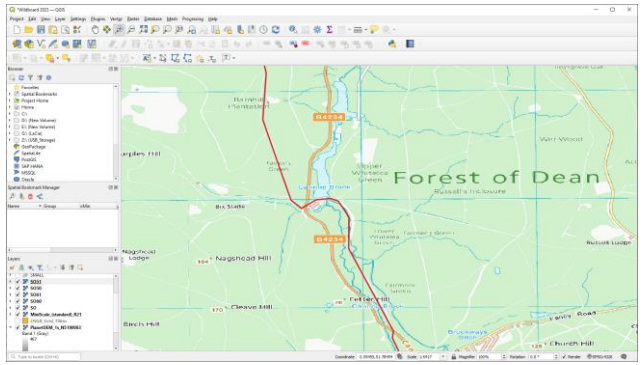
I build the map

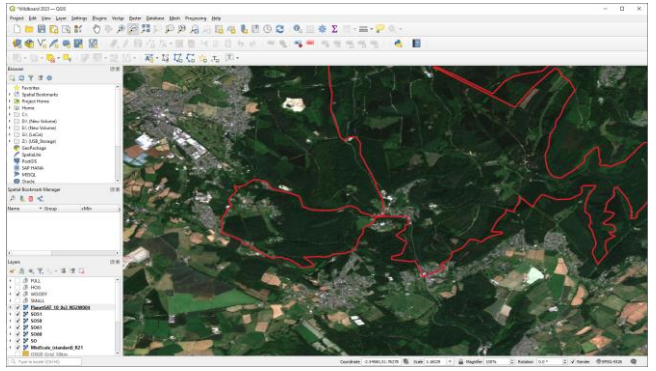










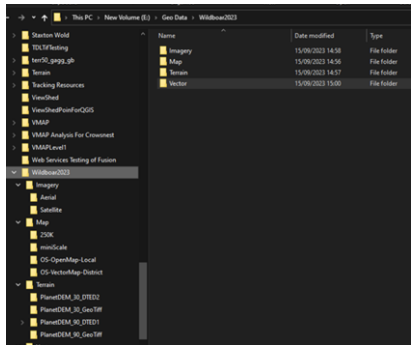


I Want to automate this process

Select whether to copy or move files (some files
Can be big so may want o move them sometime)

Select where the root directory will be

Gives a preview of what has found so
I can select what I want to copy/move



Stretch targets
1. Add an interface that allows natural language, i.e.
Find data that is contains or crosses forest of dean.

Creates folder structure based on
the map data available

Preferred Technology

> Web UI

> React, CSS and HTML

> Using Thales Design System Guidelines (from PDF)

Supporting Slides For Information

> I can provide sample map data.

> Have some test areas Ben Nevis would be good as it looks good.

Example GIS toolkits used in Thales UK

> Desktop

- ArcGIS Runtime (Free to develop with) (COTS)

> Web

- Cesium (3d) (OSS)
- OpenLayers (2d) (OSS)
- Leaflet (OSS)

> Back End

- GeoServer (OSS)

> Libraries

- GDAL (OSS)

Possible Technologies

> Technology

- Open Source Software
- Front end Web based 2d/3d
- Back end Open Source Map Server
- Windows

Base Maps

> Suggested sources

- Ordnance Survey OpenData (MiniScale, 250k, OS OpenMap Local, OS VectorMap District) rasters
- OpenStreetMap
- Located in the UK

The front end

> Fast

> 2d/3d

> Web Based

> Technology

- Examples could be
  - https://cesium.com/platform/cesiumjs/
  - https://worldwind.arc.nasa.gov/web/

A few useful links

> Tools

- https://cesium.com/cesiumjs/
- https://developers.arcgis.com/
- https://github.com/TimJMartin/Magic-GDAL
- https://qgis.org/en/site/
- http://geoserver.org/
- https://www.osgeo.org/

> Don't forget the maps…

- https://earthexplorer.usgs.gov/
- https://osdatahub.os.uk/downloads/open
- https://www.naturalearthdata.com/