How to convert freely available satellite images from Google and Bing into an image which is geo-referenced to the British National Grid.

These instructions show how to download aerial photos from online sources such as Google and Bing, stitch them into a single image and then geo-reference to British National Grid (Ordnance Survey) suitable for use as a geo-referenced background map in OCAD.

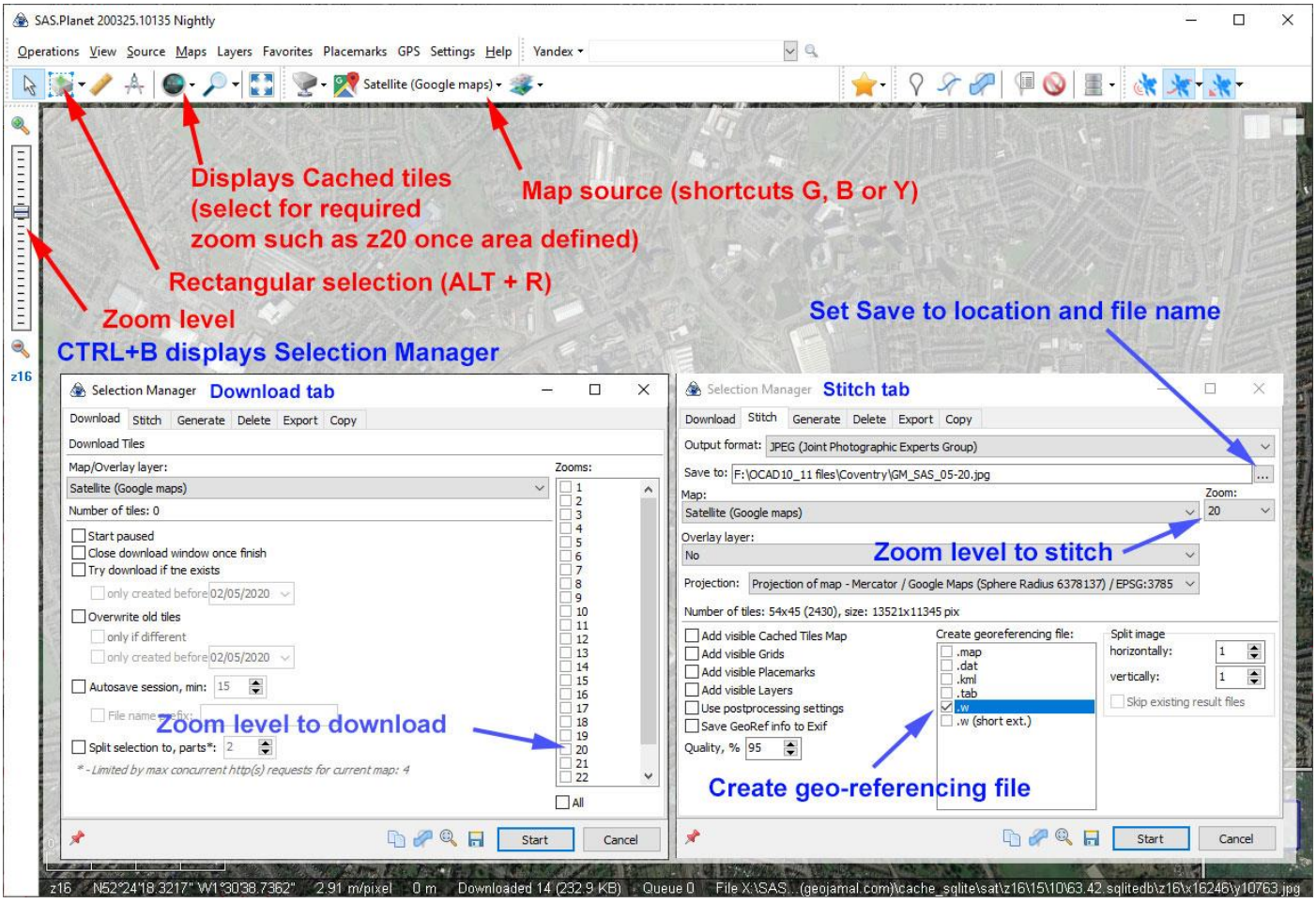
Installation and Configuration

Download and Install SASPlanet.

1. SASPlanet can be downloaded from: http://www.sasgis.org/programs/sasplanet/nightly.php
2. Extract the contents of the zip archive to somewhere suitable on your computer.

Open (run) SASPlanet.exe

The image below shows the primary buttons that you will need to use and a couple of the popup windows that you will need to edit.



Choose map source - Satellite (Google Maps) (Shortcut: G), Bing Maps satellite (B) or possibly try Yandex (Y)
Zoom to required area (use bar on LH side or mouse wheel), click and drag in the window to move.

Rectangular Selection (ALT+R): left click twice and then drag to draw rectangle for the required area
Selection Manager window opens:

Select Download tab if not already open:
Check it shows required Map type (Satellite Google Maps)
In the RH zoom column select required zoom level (z20 or possibly z21 for a small area)
It then shows the number of tiles it will download and the size of the final image. At z20 this may be between 10000 and 20000 pixels for a large area (Don't go much bigger than 20000 x 20000!).

Click Start and it downloads to a "Cache" folder
Note that if the Cache button is switched to the required zoom - z20 - you can see the download progress visually.

When task is complete close the window (or before it has finished tick "Close this window once finished" for it to close automatically).

CTRL+B to re-open the Selection Manager window

- Change to the Stitch tab
- Choose Output format (if you want something other than jpeg)
- Choose the "Save to" location (use button to navigate to required folder and type a name for the file)
- **Most important...** Zoom: Change to match the size downloaded (z20)
- Create georeferencing file: choose .w

Start... it will take a few seconds and it is saved to the folder that you chose.

If you want re-open the Selection Manager (CTL+R) and in the Download tab choose a different source map and repeat the process for the same selected area!

If you are using OCAD 2018 just open OCAD 2018 and go to background maps, open and choose the new file.
In the Background Map (Georeferenced) window that opens click "Transform from other coordinate system" and Choose... and scroll down to Google Mercator. OK both boxes and it should open geo-referenced.

You may discover that the image is slightly out of position (by maybe 2-3 metres?). Use F9 to manually adjust if you need to.

If you are using an older version of OCAD you will need to need a second program called gdalwarp.exe performs the necessary coordinate transformation - See page 3 – **or just open* and align the image manually using F9 with 3 adjustment points.**

***Note that if you are using OCAD12 and the image doesn't appear when you open it you need to delete the .jpgw file that was created in the SASPlanet Stitch tab (or don't "create georeferencing file" when you stitch the file).**

Bruce Bryant 02/05/2020

Download and Install gdalwarp.exe.

1. You need to download the GDAL collection of programs. This can be obtained from http://www.gisinternals.com/release.php
2. Extract the contents of the zip archive to somewhere suitable on your computer.
3. Edit the file <home folder>\Documents\WindowsPowerShell\Microsoft.PowerShell_profile.ps1 and add the following lines:

$env:GDAL_DATA= ";<GDAL folder>\bin\gdal-data"
$env:Path += ";<GDAL folder>\bin\gdal\apps"
$env:Path += ";<GDAL folder>\bin"

You need to replace <home folder> with the location of your home folder and <GDAL folder> with the folder where you stored the gdal package

4. Right click on the Window start button and choose Windows Power Shell.
5. Type in

Set-ExecutionPolicy -Scope CurrentUser Unrestricted

in powershell, then close the window.

The instructions above need only to be executed once.

Output from SASPlanet is in format WGS 84. We need to first convert it to OSGB 36, and then convert to British National Grid. We use the program gdalwarp to modify this file.

Start File explorer and navigate to the folder where you just created the aerial photo, then click on File>Open Windows PowerShell and execute the following commands

1. Convert to OSGB 1936

gdalwarp.exe -t_srs EPSG:4277 <FilenameFromSAS> <FilenameforOSGB36formatfile>

where you need to substitute in the correct names for the items between <> brackets.

2. Project to National Grid

gdalwarp.exe -t_srs EPSG:27700 <FilenameforOSGB36formatfile> <FilenameforBNGformatfile>

You can now open the file <FilenameforBNGformatfile> as a background image in OCAD. It will be correctly georeferenced for the British National Grid.

This page of the document is edited from the original document by “Alex Finch (SROC mapping officer) with help from Matthew Pickering of BOK and Gian-Reto Schaad of OCAD”.