

# Condor 2 scenery creation notes:

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## Background:

I didn't know where to start, the below numbered lists kindly supplied by a landscape pro.

1) a scenery is a made up of a group of tiles

2) each tile is 23 km x 23 km (14 mi x 14 mi), which is actually a resolution of 90 meters times 256 = 23.040 km

If you pick 4 tiles, I would suggest you offset the airport from the centre a bit so it falls fully into one of the 4 tiles, otherwise it will be cut-up into 4 pieces. Not absolutely necessary, just a suggestion so you can view the airport in one tile only.

3) the original resolution of 90 m is based on Space Shuttle elevation data (STRM)

4) Condor-2 uses a resolution of 30 meters, which is 3 times the resolution of Condor-1, and 30m STRM data is available

5) The last 1/4 tile edge of a scenery is not flyable. So if you have one tile, only the centre 1/2 or 11.5 km x 11.5 km is flyable, If you use 2 x 2 tiles, i.e 4 tiles, 46 km x 46 km, only the centre 34 km x 34 km is flyable, etc...

6) the projection used is UTM, (Universal Transverse Mercator), This means that all elevation data and photographic data needs to be converted to UTM coordinates. If you pick 4 tiles, I would suggest you offset the airport from the centre a bit so it falls fully into one of the 4 tiles, otherwise it will be cut-up into 4 pieces. Not absolutely necessary, just a suggestion so you can view the airport in one tile only.

**The steps to create a Condor scenery are as follows:**

- 1) pick an a range of coordinates you want to be able to use
- 2) expand that area by at least 1/4 tile or 6 km all around.
- 3) pick the nearest number of tiles that will accommodate the coordinate range desired - for a flyable 20 mi x 20 mi, which is 32 km x 32 km, you could use just 4 tiles or that could be expanded to 2 x 3 or 3 x 2 or 3 x 3 tiles.
- 4) Get the STRM elevation data, convert to UTM and crop to the desired number of tiles
- 5) Import this data using the Condor tool and you can then create a basic scenery

Well, the general idea is to avoid multiple UTM zone landscapes if you don't know what you are doing. Regarding older QGis versions - the guide was written when 2.18.16 was the stable release and everything worked. So the easiest option may be to download this version.

Here is the link to the main folder with all older versions, just pick your platform: <http://download.osgeo.org/qgis/> JM - I used 2.18.16

- 6) add an airport and you can then actually fly over the scenery, but it will be just grey.
- 7) get images for the area and convert to UTM and crop to each tile
- 8) create a forest map : this can be done manually with the condor tool or a graphics program but is extremely tedious, or use geo data that may be available.
- 9) create a thermal map : this can be done manually or use geo data and assign thermal values to each type of feature, such as roads, lakes, bogs, green fields, yellow fields, dark fields, etc...
- 10) add details, such as more airports, turn-points, a wind sock for each airport, and various objects if desired, such as hangars and other airport features. This can take a lot of effort.

**GOAL: Test the concepts for a simple scenery.**

Image processing takes time. Start with just one tile of our local area and see if we can go through the steps and at least get a grey terrain. We'll worry about trees, lakes, buildings later.... Start with our airport at Dansville, NY.

**STEP ZERO:**

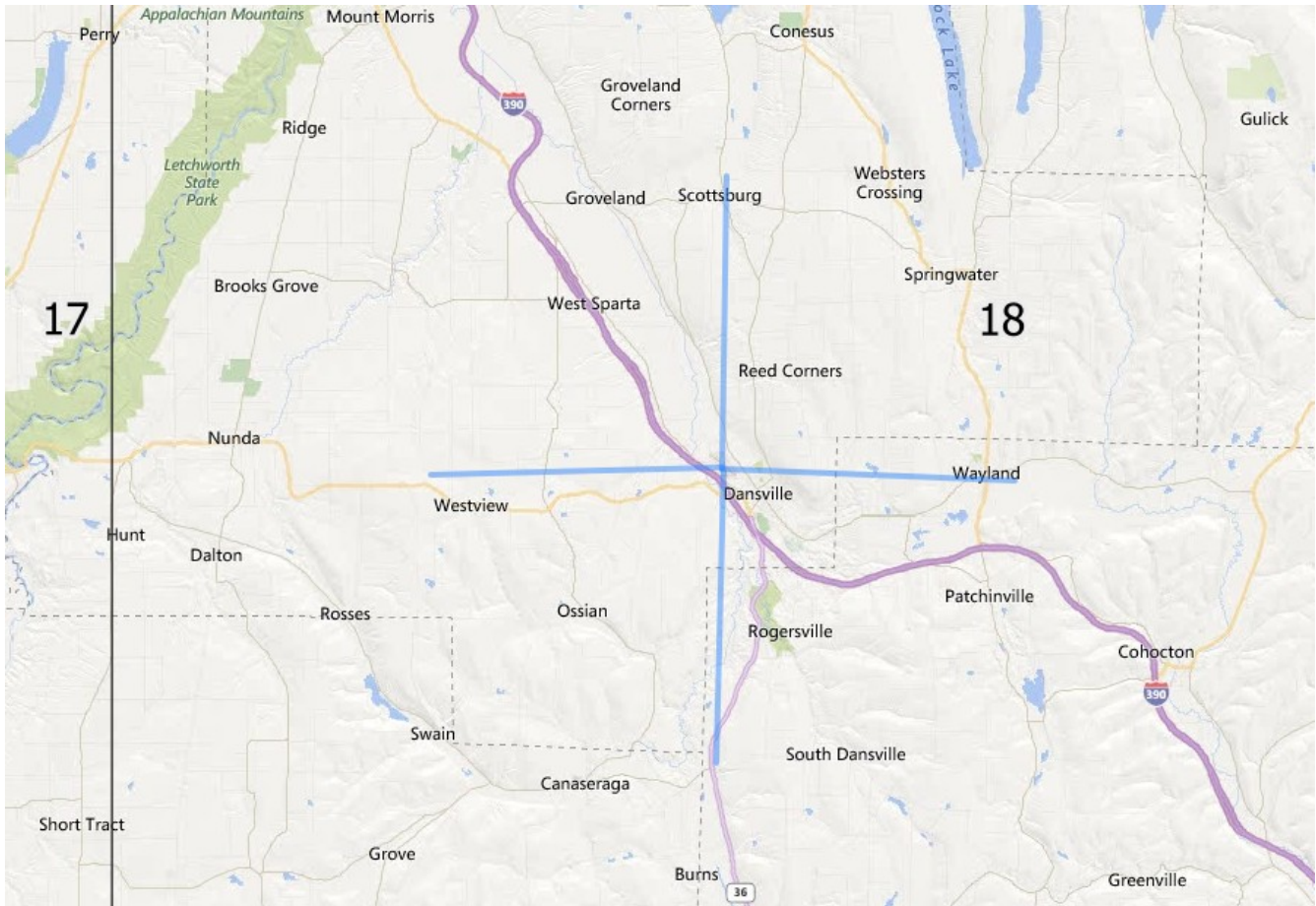
I downloaded the tool set and documentation for landscapes from the condorsoaring.com site, unpacked that in a different directory from where Condor2 is installed.

## STEP ONE: Determine the coordinates for the scenery

Used this tool to find our UTM and map distances →

<https://mangomap.com/robertyoung/maps/69585/what-utm-zone-am-i-in-#>

See first map below, each segment from Dansville is 7 miles, forms one 14x14 square

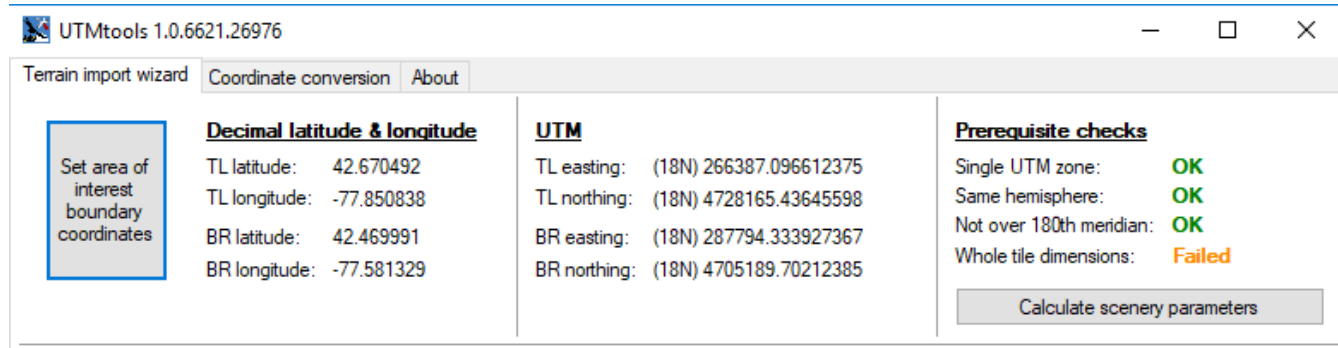


Our initial test run will just be that one square, need the LAT LON for each corner.

Upper left :	42.670492	-77.850838	Upper right:	42.670492	-77.581329
Lower left:	42.469991	-77.850838	Lower right:	42.469991	-77.581329

## STEP TWO: convert to UTM coordinates, proper size.

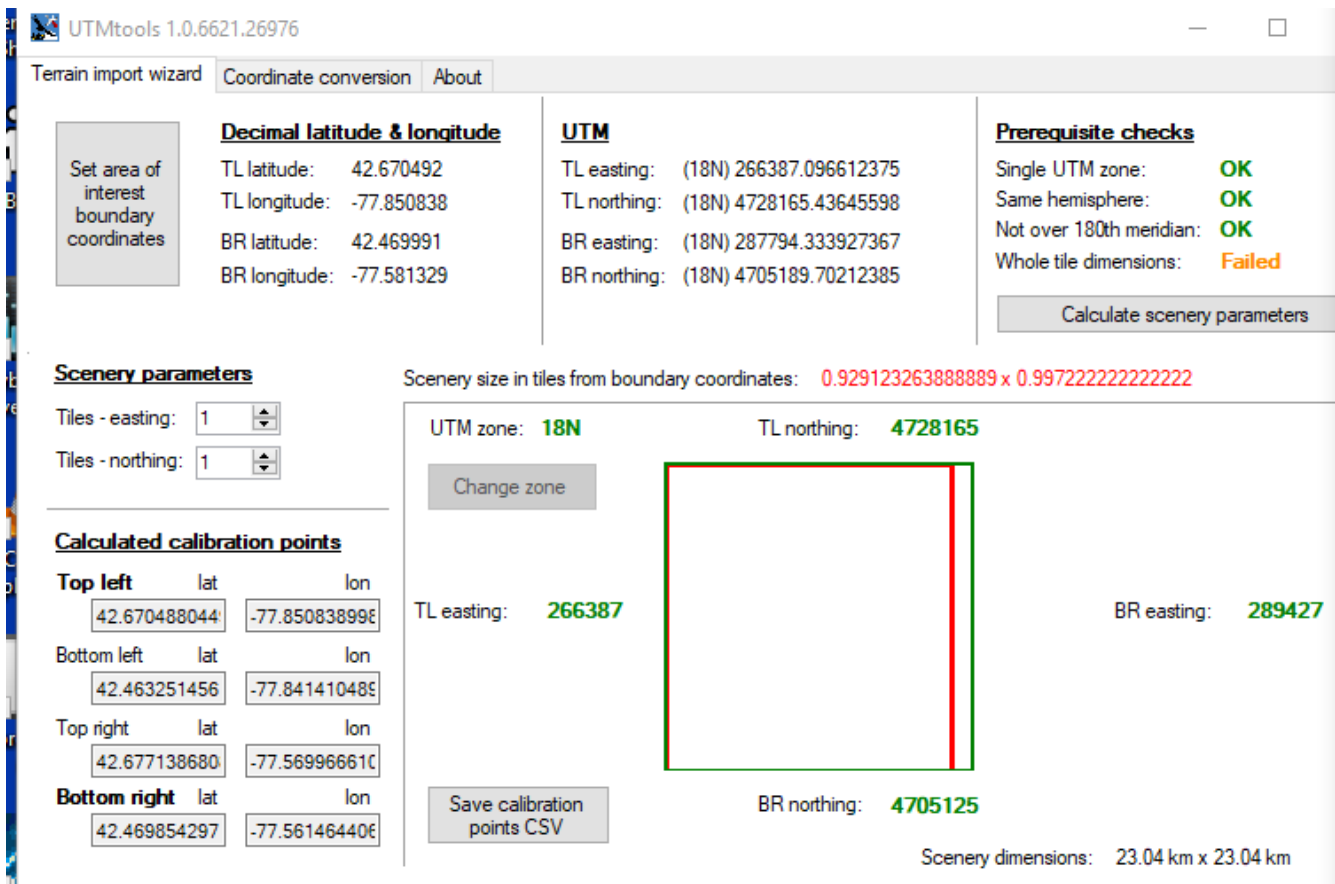
I used the UTMtools (part of the scenery download from Condor site), I put in the numbers above in the “Set are of interest” button.



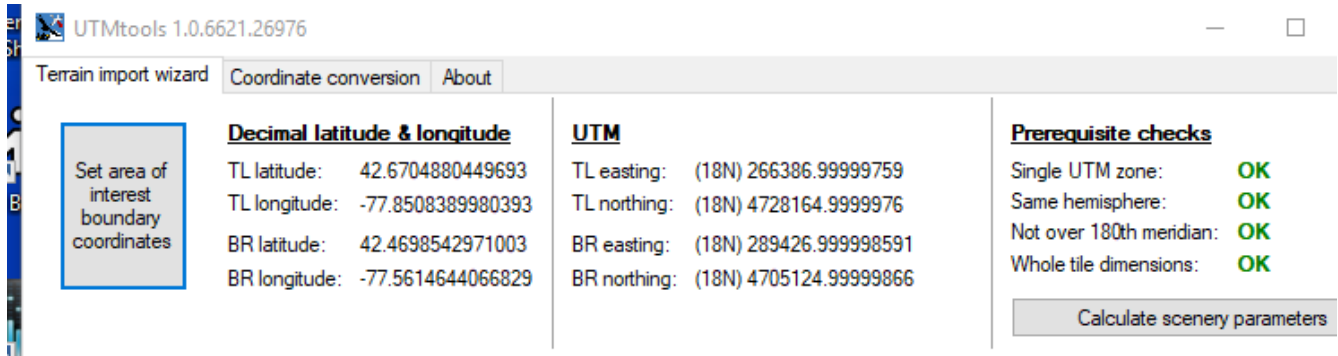
I was not on an even tile (expected). I then clicked on “Calculate scenery parameters” and then in the “Scenery parameters”, I adjust to just 1x1 tile. It gave me new calibration numbers to try for LAT/LON to try. I also saved the calibration points John/soaring/condor/calibration.csv

Upper/Top Left: 42.6704880449693 -77.8508389980393

Lower/Bottom Right: 42.4698542971003 -77.5614644066829



I then tried “Set area of Interest” again with the new numbers, and it PASSED!!!



You need to store the all these values for later, keep the image! TL – top left, BR – bottom right

23040	23040	42.6704880449693	-77.8508389980393
0	23040	42.6771386808413	-77.5699666101818
0	0	42.4698542971003	-77.5614644066829
23040	0	42.4632514561498	-77.8414104892785

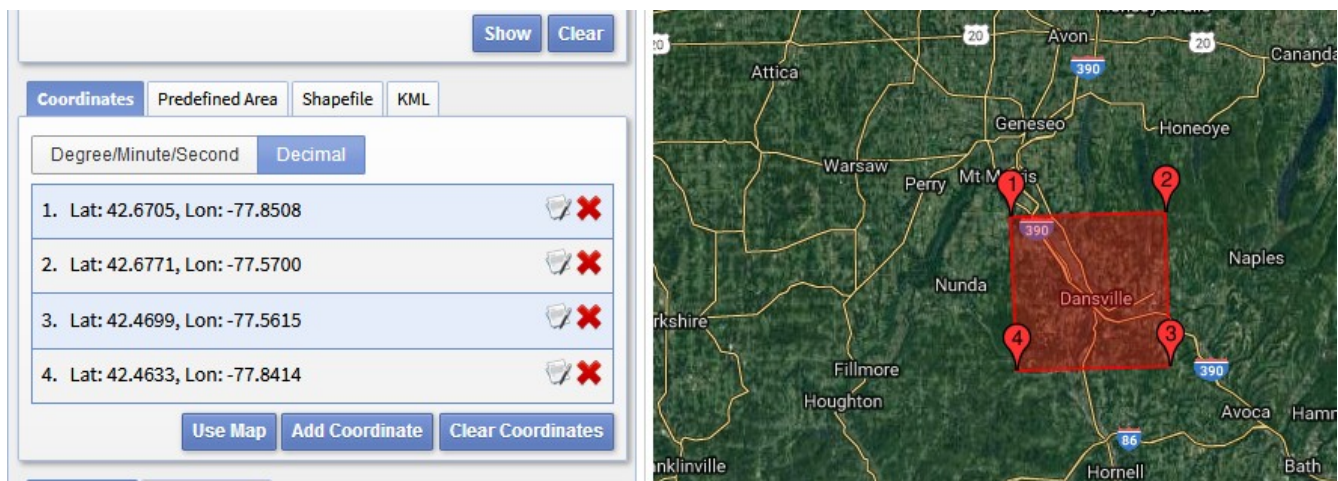
You also need the UTM:

TL easting: 266386.99999759    northing: 4728164.9999976  
 BR easting: 289426.99999591    northing: 4705124.99999866

### STEP THREE: Get the terrain data

Used USGS survey → <https://earthexplorer.usgs.gov/>.

Registered and then entered the search criteria. I entered the complete numbers above, they were truncated.



(FROM Condor Landscape Guide rev1a.pdf,) Now that we have outlined the area of interest, we can proceed with getting the data. Press the **Data Sets >>** button, from the list on the following page select **Digital Elevation > SRTM > SRTM 1 Arc-Second Global** and finally press the **Results >>** button

Then I chose download, BIL 1 arc-second and saved to john/soaring/condor/n42\_w078\_1arc\_v3\_bil.zip

Unzipped the files and got four files.

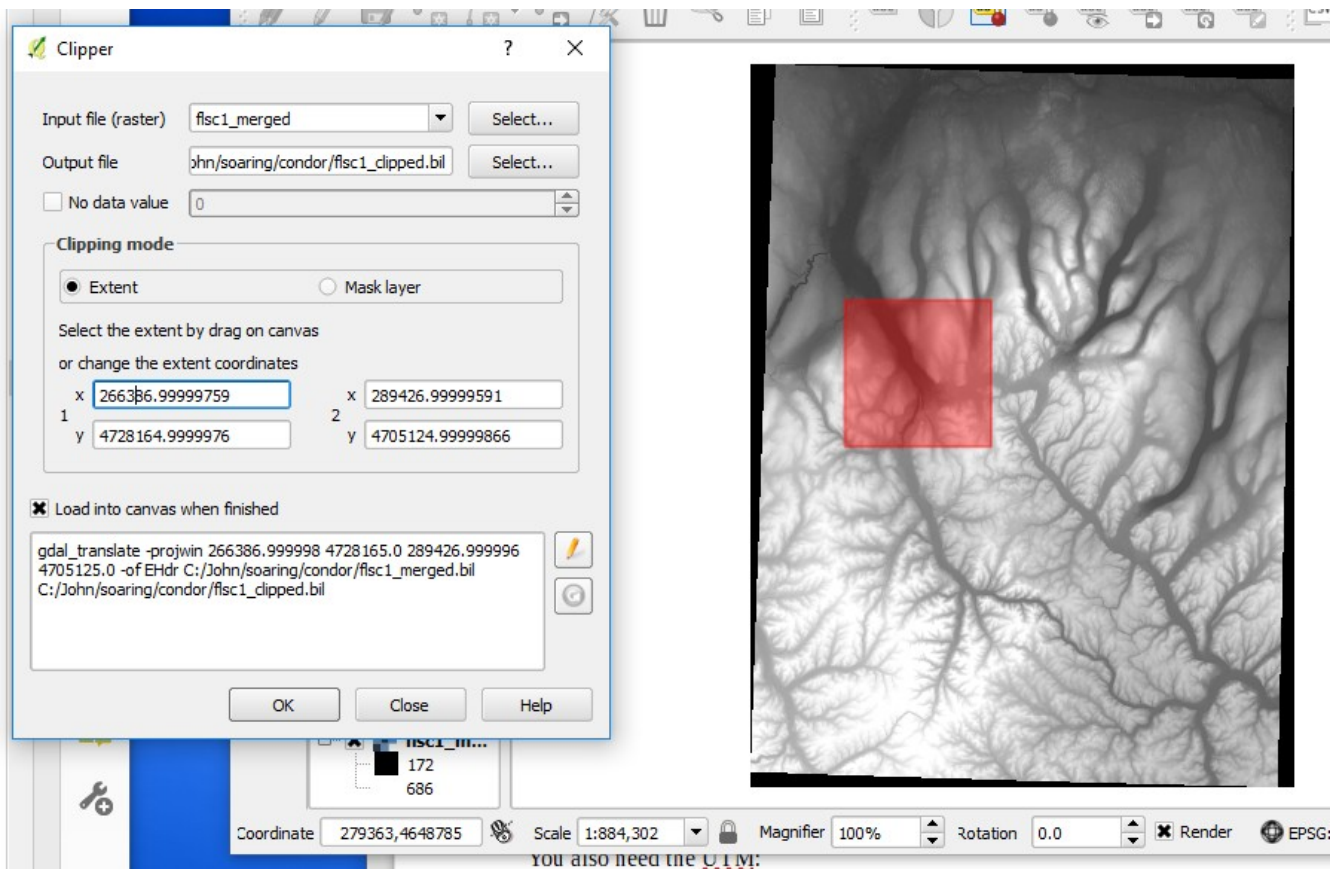
## STEP FOUR: process with qgis

After reading some FORUM notes, I downloaded and installed QGIS 2.18.16, x64 from → <http://download.osgeo.org/qgis/>

I started QGIS, now following instructor in Condor Landscape Guide rev1a.pdf, page 15. Follow those instructions carefully, can be confusing and mistakes are costly!

The picture below is from the last clipping, it was a bit of a mystery the 1 (x,y) and 2(x,y) blocks. But simple 1 (TL), 2 (BR), x (easting), y (northing) values from earlier....

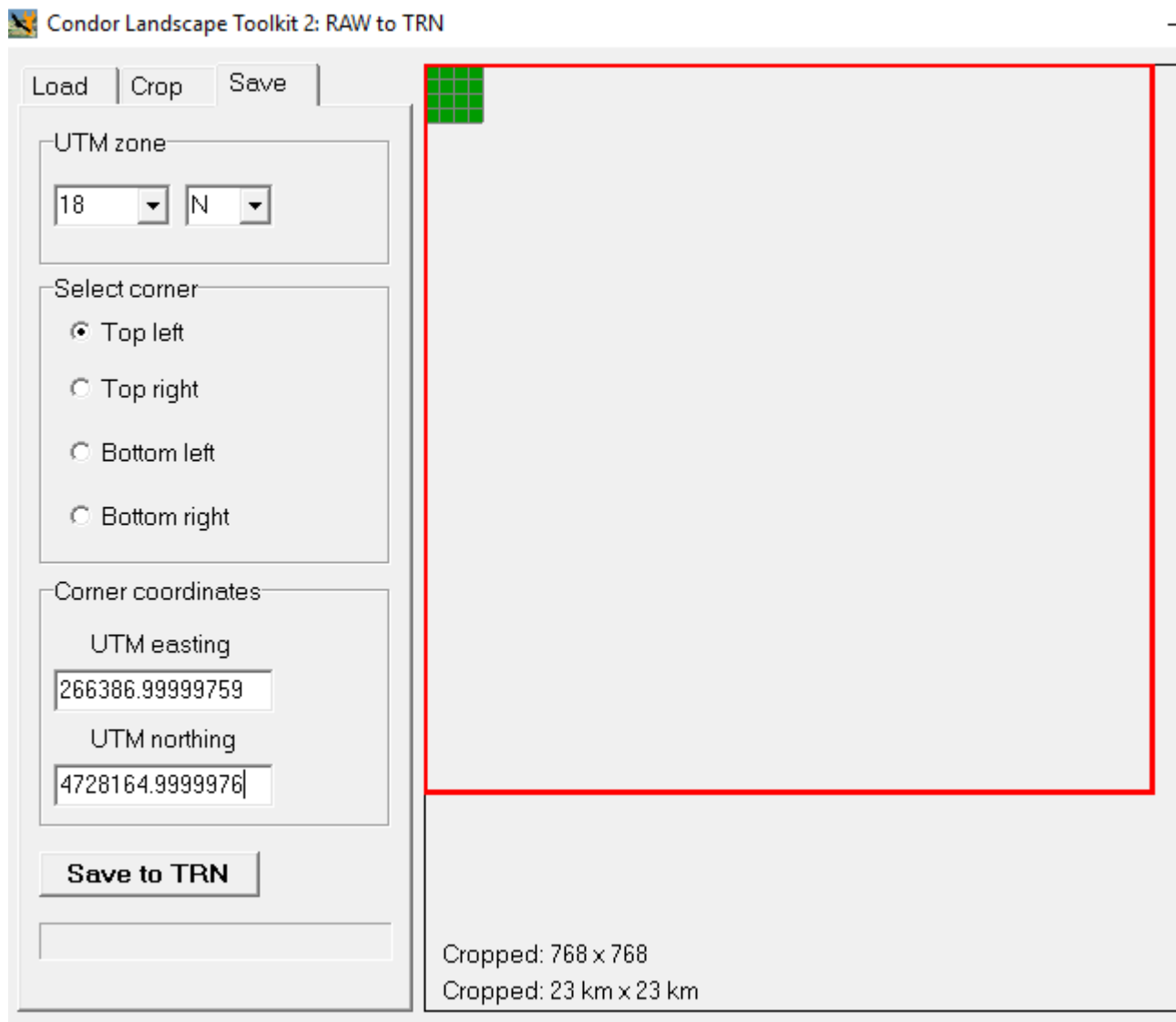
***A little concerned at the map drawn. Looks like a big river running through our field???? QGIS displays lat/lon and if I mouse over, the values look correct for our location, but the picture is wrong?***



From the Importing terrain elevation data into condor, the header of our files looks like this:

```
BYTEORDER      I
LAYOUT         BIL
NROWS          768 << - confirms we are one tile 768, even divide by 192 -yes!
NCOLS          768
NBANDS         1
NBITS          16
BANDROWBYTES   1536
TOTALROWBYTES  1536
PIXELTYPE      SIGNEDINT
ULXMAP         266401.999861111
ULYMAP         4728150.00013889
XDIM           30
YDIM           30
```

We can directly import into condor, 768 even divide by 192. We DO NOT need to use the RawToTrn tool for additional cropping... But we do need to Load/Save as they specify. **OK, the map is all one shade of green, that indicated no change in terrain elevation???? BAD.**



After the “Save to TRN” as they instructed you will find the following in  
/Condor2/Landscapes/flsc1/flsc1 (just a file)

/Condor2/Landscapes/flsc1/HeightMaps (a bunch of .tr3 files)

## **Building the Landscape**

Again, just following the exact instructions in the guide.

Had an immediate problem, my new Landscape showed in the pop down menu in the Editor, but nothing happened when selected? I checked other landscapes, they worked.

Found the problem, I looked in the directory for my landscape and the file I had saved was just called flsc1, not flsc1.trn – I renamed it and things were fine.

## **RUN IN CONDOR**

I started Condor2 and my landscape didn't show as an option?? I then checked the directories for existing landscapes and found I was missing a .ini file.

I created flsc1.ini by just copying one of the other.

Started Condor again and my landscape was there!!!!

Also, got a warning about demo mode, unregistered scenery?

When I selected it I got a missing .cup file error, and that was FATAL, very FATAL, had to kill Condor2 with the task manager (kept getting an access violation error).

So I just copied an existing cup into my Landscape directory and renamed it to flsc1.cup.

Started condor, it seemed happy, only problem was the terrain was BLACK, created a task.

It allowed me to fly over BLACK, I descended and circled, there was NO terrain visible, just a flat BLACK horizon. I landed at zero altitude, where our terrain is about 600' - 1500' in that area.

Poop!



## **TRYING AGAIN:**

Problem seemed to be with QGIS and the strange map. Checked forums, uninstalled 2.18.16 from the prior site and download from another site that seemed to be better (downloaded x64 version)

<http://www.condorsoaring.com/forums/viewtopic.php?f=37&t=18579>