Multi Tile - Condor 2 scenery creation notes (rev 5)

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Multi Tile - Background & Credits:

I didn't know where to start. Plenty of advice from Nick Bonniere, a Condor2 pro who created landscape for Lake Placid. He supplied the below numbered lists of tips which were useful in understanding the process. Also great tutorial from Luis Briones (a member of a Flying Club in Argentina) on how to create photo realistic scenery easily (no 3-D trees/buildings, but the ground looks real from the air).

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

2) each tile is 23 km x 23 km (14.29 mi x 14.29 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 center 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 center 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.

Tiles are in a grid of rows and columns starting at the bottom right corner (South
East), which is tile 0000. The first two digits are the column number and the
second two digits are the row number. Above tile 0000.bmp is tile 0001.bmp. The
tile to the left is tile 0100.bmp

You can use multiple resolutions. For LakePlacid, the centre tile is hi-res
8192x8192, while all the other tiles are 4096x4096.  The one I sent you was
4096x4096.  The file size increases by a factor of 4, so I only sent you a 48MB
file instead of 192MB.
```

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: After creating a one tile simple scenery, create multi-tile.

Image processing takes time. We'll do a 3x3 tile area (42 x 42 miles). This covers a decent number of local airports and we'll put our airport at Dansville, NY., in the middle of one tile on the west border. A total of 9 tiles.

## STEP ZERO: Download tools, get the landscape creation guide.

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 14.29 x14.29 square. We want to stay away from UTM zone 17 to our west to avoid complication in crossing a zone boundary. Total of 9 tiles to form a square area. Our dimensions will be 42.87 x 42.87 miles
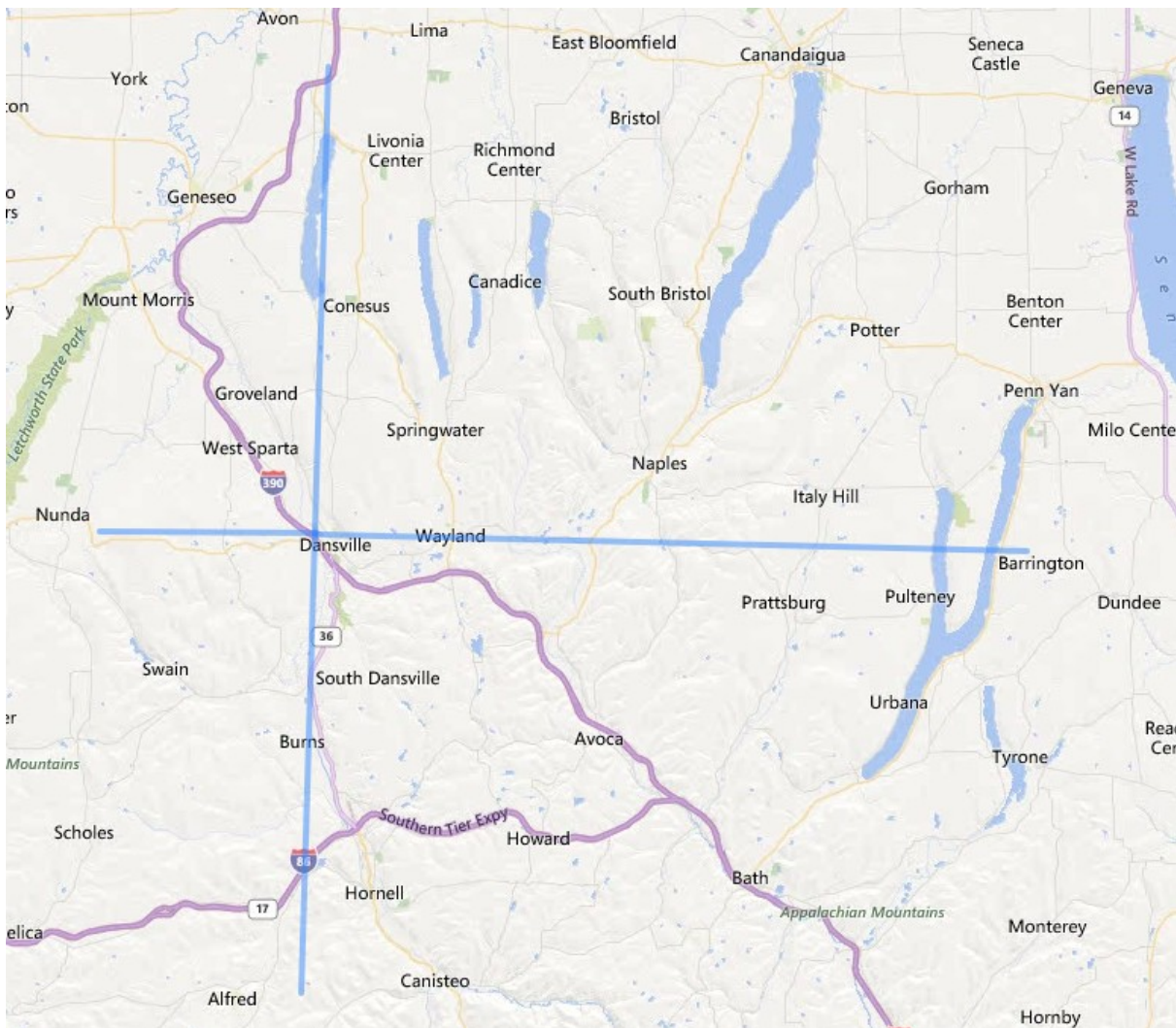
We need the LAT LON for the Upper Left point and the Bottom Right across all 9 tiles:

Upper left :   42.878665   -77.908173   Upper right: 42.878665   -77.071838
Lower left: 42.261744   -77.908173   Lower right: 42.261744   -77.071838

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 3x3 tile. It gave me new calibration numbers to try

for LAT/LON to try. I also saved the calibration points John/soaring/condor/calibration9.csv

Upper/Top Left: 42.878662130 , -77.9081731222263

Lower/Bottom Right: 42.2749549762531,   -77.0420841288927

      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. This gets used when you want to lay a photo layer on top (later).

You also need the UTM easting/northing:

```
TL easting:  262485.999995027   northing:  4751442.99992936
BR easting:  331605.999999562   northing:  4682323.99999953
```

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.
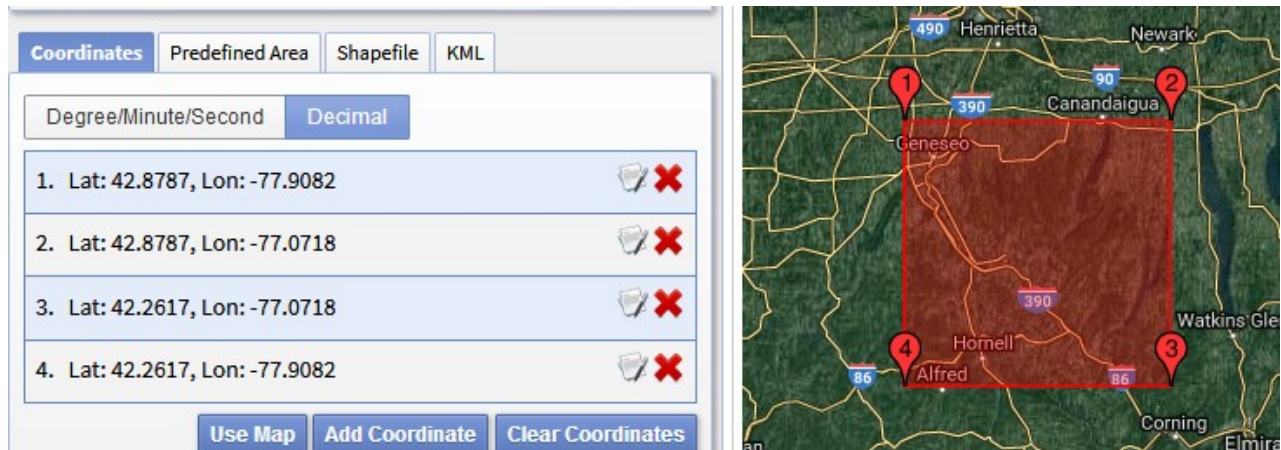
Read this part of the Condor Landscape Guide rev1a.pdf for more details on the selection download process

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 2.18.28, 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….

NOTE!! When creating the clip the tutorial narrative leaves out that you have to add 'tr 30 30' in the window as earlier. It does show in their example screen, but not in the narrative.

(NOTE – the image below is from a 1 tile example, ignore the easting/northing numbers)
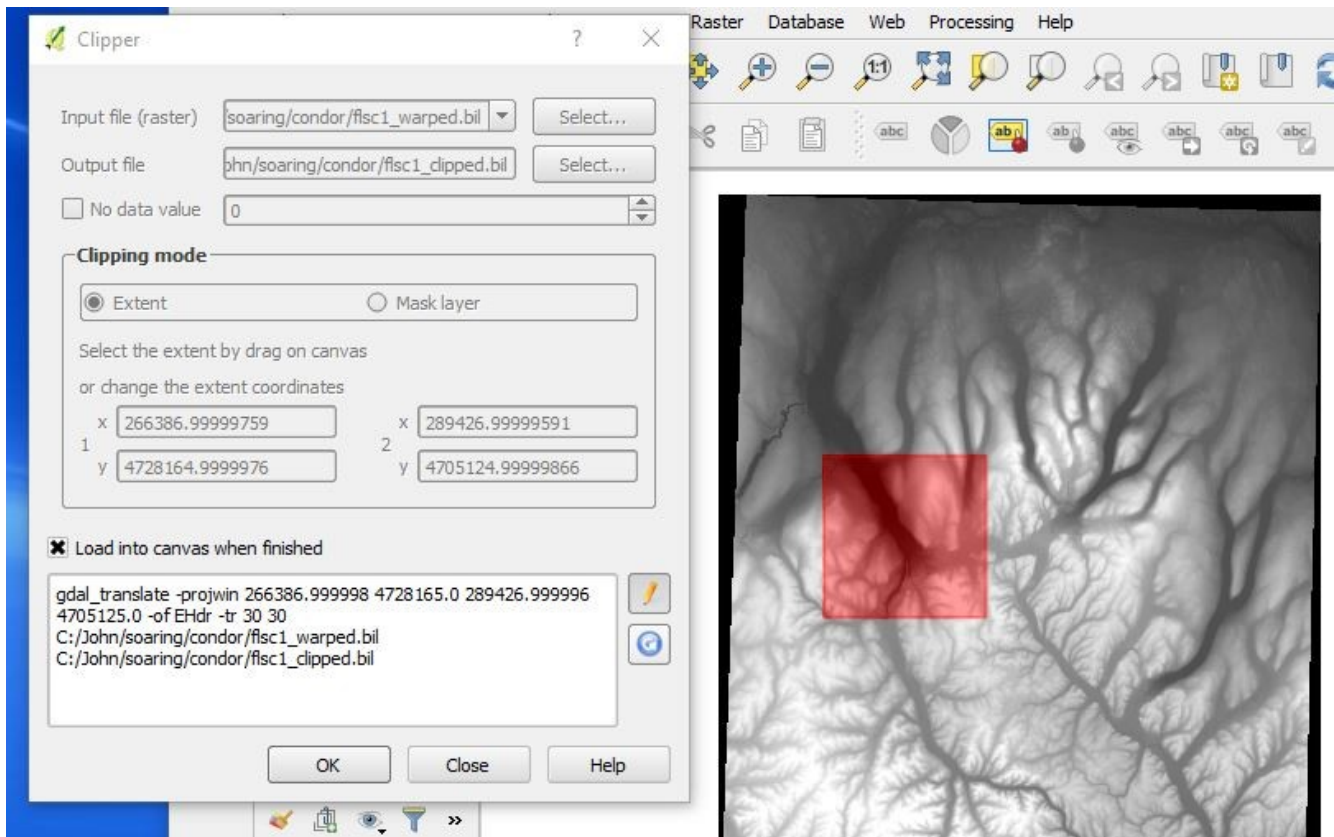
From the Importing terrain elevation data into condor, the header of our flsc9_clipped.hdr looks like this:

```
BYTEORDER        I

LAYOUT           BIL
NROWS            2304
NCOLS            2304
NBANDS           1
NBITS            16
```

```
BANDROWBYTES    4608
TOTALROWBYTES   4608
PIXELTYPE       SIGNEDINT
ULXMAP          262488.034296814
ULYMAP          4751443.76235003
XDIM            30
YDIM            30
```

We can directly import into condor, 2304 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.

This is a good time to check your work. You should see some different shading in the green box, that indicates OK elevation data. If it's solid green you may be in trouble...After the "Save to TRN" as they instructed you will find the following in the directory /Condor2/Landscapes/flsc9

```
jmurtari@anvil:/cygdrive/c/Condor2/Landscapes/flsc9>ls -lR

.:
total 1188
-rwxrwxr-x+ 1 jmurtari None 1179684 Feb  2 11:56 flsc9.trn      << make sure it ends in .trn
drwxrwxr-x+ 1 jmurtari None       0 Feb  2 11:56 HeightMaps

./HeightMaps:
total 10944
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h0000.tr3
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h0001.tr3
```

```
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h0002.tr3
 ....
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h1108.tr3
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h1109.tr3
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h1110.tr3
-rwxrwxr-x+ 1 jmurtari None 74498 Feb  2 11:56 h1111.tr3
```

STEP FIVE: Building the Terran ONLY 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.

Adding the Dansville Airport, make sure to convert feet to meters, e.g
660 elevation = 200 meters,   3500' runway = 1066 meters,   100' width = 30 meters

Also discovered the actual runway heading is 312 to line up in condor.
Had located runway (in grass) using this LAT/LON :   42.570530 / -77.712502

To maneuver in the map. Press the little FINGER icon near the top. Left click and hold to move the map. Left click to zoom in. Middle/Right click to zoom out.

Follow the guide instructions to export everything!!! Make sure to save it!
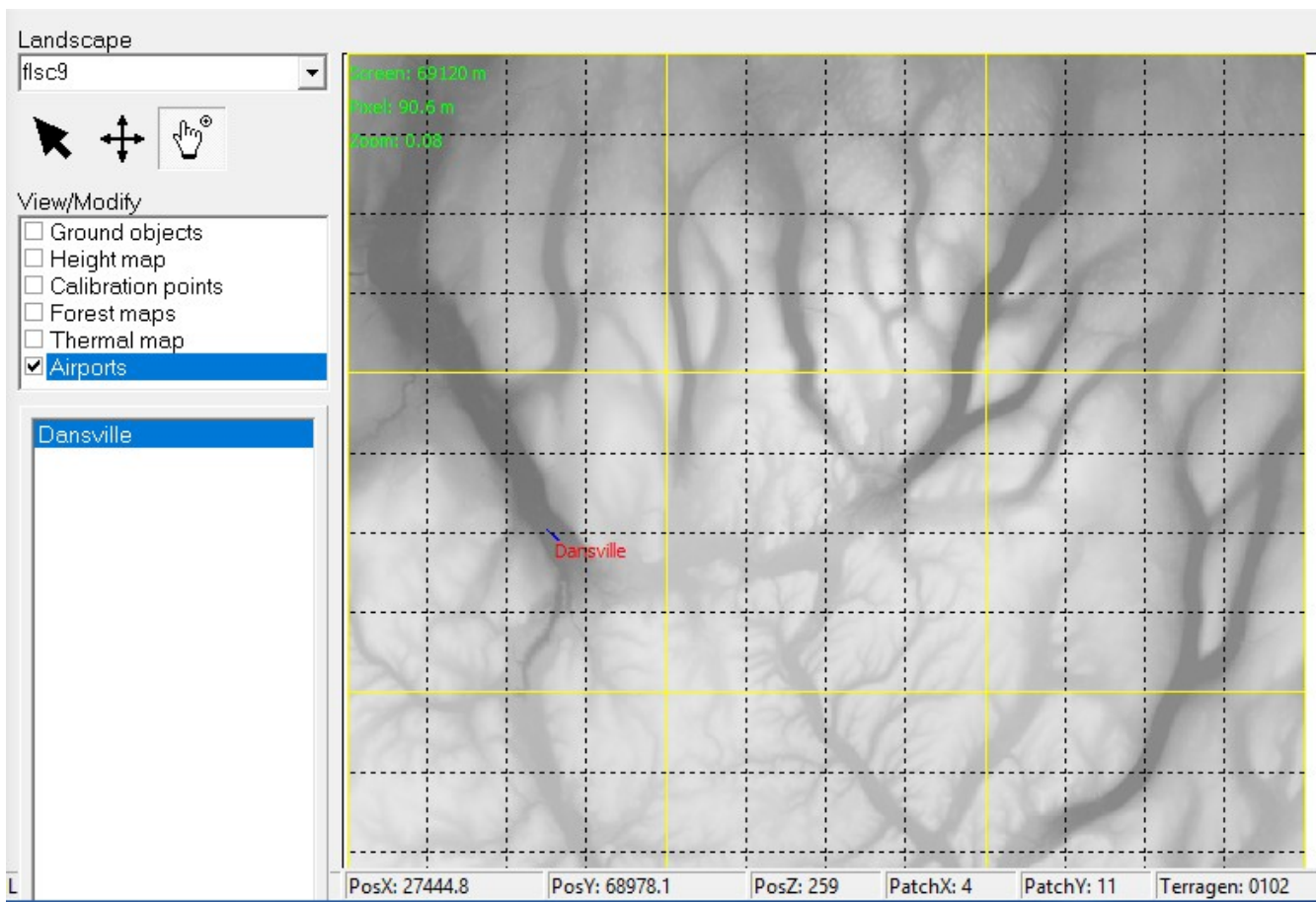
STEP SIX: Try it out in Condor2

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 others.

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 Lanscape directory and renamed it to flsc1.cup.

Started condor and it looked like a desert, but our local terrain was visible!!!

STEP SEVEN: Adding photo realistic scenery.

The 3-d work takes some time. Wanted to have quick steps to give us ground that would look somewhat correct from an airborne perspective.

 Resources:

Convert decimal lat/lon to hh:min:sec → https://www.latlong.net/lat-long-dms.html

   Remember we need to use the corrected LAT/LON for even tiles from earlier:

```
Upper/Top Left:      42.878662130 ,      -77.9081731222263
Lower/Bottom Right: 42.2749549762531,   -77.0420841288927
```

STEPS BELOW taken from Tutorial by Luis Briones (a member of a Flying Club in Argentina) → http://aeroroca.com.ar/varios/Easy%20way%20to%20making%20a%20photo-realistic%20Condor%20scenery.pdf

        Below is from Section II and III of his tutorial (above). Section 1 covers basic steps we already completed above.

NOTE: remarks you see *[between braces]* are additional comments I added.

Get the image data.

Needed utilities:

- SASPlanet (https://bitbucket.org/sas_team/sas.planet.bin/downloads/)

1. Open SASPlanet (download your satellite images)
   [I chose Bing Maps as a source]
   a) Go to menu Operations->Selection Manager->By Coordinates
      [You can enter in decimal format]
   b) Find area a bigger than the final map. Not too much
      *[Maybe another .5 miles on each side, this was three tiles vertical, 3*14miles = 42 miles, the different in Latitude from top to bottom was 0.603707 / 42 = 0.014373/mile … I adjusted the lat/lon by .015 in the 'bigger' direction for longitude, .020 for latitude]*
   c) Put upper and lower corner and push Apply.
   d) Select Download tab.
   e) Select Map/Overlay layer
      [Bing]
   f) Select zoom. 17 is good (1.87m/pixel at 39ºS 68ºW). Check if there are images for this zoom before start.
      [I chose 18]
   g) Check Split selection to, parts*:
      [This will allow for simultaneous downloads, the files can be very large]
   h) Choose the biggest number your system allows.
   i) Push Start. This take time, depend of the level of zoom that you choose. Always check the method with low details zoom, like 10 or less. You need a lot of free disk space. 60 Gb or so.
      [I chose zoom 18, and with just a 42x42 mile selection, it downloaded 1.5 Gig

```
/c/SASPlanet/SAS.Planet.Release.160707/cache/vesat>find . -mtime -1 -ls | wc -l
    103863
  c/SASPlanet/SAS.Planet.Release.160707/cache/vesat>du -sk *

   628     z10
   1224    z11
   748     z12
   844     z13
   248     z14
   1453612 z18
```

   started at 1115, finished 1145

2. When step one is over
   a) Go to menu Operations ->Selection Manager->Last Selection or load from file
   b) Select Stitch tab.
   c) In Output format, select GeoTiff.
   d) Put your path and file name in the Save to:
      [Make sure to choose name prefixes different than you used for the original terrain files earlier . I used pflsc9.tif]
   e) Select your Map: *[Bing]*
   f) Choose your zoom. (The same that you use in step one)
   g) Put No in Overlay layer:
   h) Import. Select EPSG:4326 in Projection.
   i) Click Start. This process makes the image you use in Condor. Be patient!!!
      [I have a pretty fast core7 processor/SSD drive, took about 15 minutes]

I split my 10x14 tiles scenery in 4x8 images. In Stitch tab, you can divide the image using Row and Column in bottom right part of it.   *[I split to 3 x 3 – 9 files]*

```
 /c/John/soaring/condor>du -sh *.tif


1.5G    pflsc9_1-1.tif  - was the upper left tile
1.5G    pflsc9_1-2.tif
1.6G    pflsc9_1-3.tif  - was the lower left tile
1.5G    pflsc9_2-1.tif
1.6G    pflsc9_2-2.tif
1.5G    pflsc9_2-3.tif
1.4G    pflsc9_3-1.tif  - was the upper right tile
1.5G    pflsc9_3-2.tif
1.6G    pflsc9_3-3.tif  - was the lower right tile
```

__Orthophotographic HD image data__

Needed utilities:

- QGIS - Free, open source Geospatial Information System (GIS) software.
  http://www2.qgis.org/en/site/
- GIMP2.8.4+ (http://www.gimp.org/downloads/) or Photoshop.

1. Open QGIS
   a) Go to menu Layer ->Add Layer->Add raster layer… and select the file(s) created in SAS.planet.

b)   Go to menu Layer ->Add Layer->Add delimited text layer… and select the CalibrationPoints.csv. First record has field names unchecked and Geometry definition is Point coordinates. Choose field 4 for X field and field 3 for Y Field.
Click OK.

[When in Part III, calibration, used the calibration9.csv created earlier, added column headings to .csv file first-- added some spaces below for readability. YES, y is before x!]

```
a,     b,        y,                  x
69120,69120,  42.8786621306115,  -77.9081731222263
0,6    9120,  42.8970319510375,  -77.0624981649406
0,        0,  42.2749549762531,  -77.0420841288927
69120,    0,  42.2569784226281,  -77.8794130401994
```

a) Select WGS84 EPSG:4326 and Click OK.
   [You may see another option with your UTM zone from earlier, DO NOT PICK it]
b) Check if your image is bigger than the calibration points.
   [You may need to redo if not larger]

1. Go to menu Raster->Miscellaneous->Build virtual raster (Catalog).

a) Check Choose input directory instead of files.
[This should be the same where you saved the .tiff . I didn't choose that to avoid confusion, just went to select and picked the 9 tif files]

b) Select the directory. It will take a few seconds, then a whole bunch of files will show up in the lower section of the dialog box.

c) Use Select to choose the path and name (.vrt) of your Output file.
[I chose pflsc9_raster]

d) Uncheck Load into Canvas when finished.

e) Select the pencil and delete all files name except one.
[In the bottom area you will all the files in the directory. You must remove almost all of them shown after the ddalbuildcrt command. Just leave your tiff file(s).
In my case this was left:
```
gdalbuildvrt C:/John/soaring/condor/plfc1_raster.vrt C:\John\
soaring\condor/pflsc1.tif
```

f) Delete the actual file name and insert a wildcard. E.g. D:\imagenes\Tutorial/*.tif
 [I didn't do this, only 1 file]

g) Click Ok.
[It now created the .vrt file]

h) Click Close when the process finished.

2. Go to menu Raster->Projections->Warp (Reproject).

a) In Input File, choose the vrt file you just built in step 2.c.
[pflsc1_raster.vrt]

b) Use Select to choose the path and name (.vrt) of your Output file. E.g. Reproj.vrt
[I chose pflsc9_reproj , make sure to pick .vrt extension]

c) Check that Source SRS is EPSG:4326

d) Check Target SRS and choose the UTM zone for you.
[Now pick your UTM zone]

e) Click Resampling method and choose Cubic Spline.

f) Click Memory used for caching. If you have it, input 500mb. Above 500mb, the speed is not supposed to be appreciably faster.
[I used 500 mb]

g) Click Use multithreaded warping implementation if you have more than one core in your processor.

h) Uncheck Load into canvas when finished.

i) Click OK and be patient!!!
[Not sure about that comment, mine finished very quickly, and created the pflsc1 _reproj file]

k) Click Close when the process finished.

4. Go to menu Project-> Project Properties

a) Click Enable 'on the fly' CRS transformation (OTF).

b) Select your UTM reference system.

c) Click OK.

5. Go to menu Raster->Extraction->Clipper…
   a) Select the file from step 3.b in Input file (raster).
      [pflsc9_reproj.vrt in my case]
   b) Use Select to choose the path and name of your Output file. Ex: Clipped.vrt
      [pflsc1_clipped.vrt – again, choose correct extension]
   c) In Clipping mode check Extend.
   d) Go to the upper left calibration point and zoom a lot near there.

   e) Click at point and maintain. Move a bit to lower right the mouse.
   f) Write somewhere the values of 1 X,Y.
      [If you drag values should fill in automatically.
      If you are entirely inside, you can use cal values from earlier]
   g) Go to the lower right and do the same. In this case move the mouse to upper left and write de values of 2 X,Y.
   h) Put the values of point f) and g) in 1 X,Y and 2 X,Y
      [#1 is TOP LEFT, x (easting), y(northing), #2 is bottom right]

   i) You see a red rectangle that cover your calibrations points.
      [You need to be inside the calibration points.]
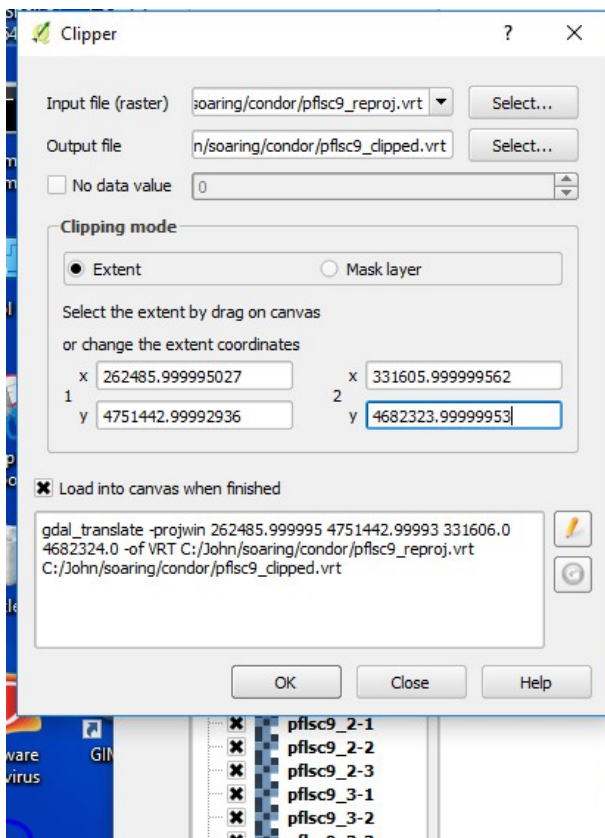
j) Click Load into canvas when finished.

k) Select the pencil and delete "-of ADRG". (if present)

l) Click OK.

m) Click Close when the process finished.

n) Deselect other images in Layers Panel (Left side)

If all worked ok, the last image has exactly the size of your calibrations points. EUREKA!!!

6. Right click in Layers Panel over the name of the image from step 5.b
   [in my case pflsc1_clipper, little confusing on left pane layers panel, the only one that showed picture was pflsc1 (not the clipped]

   a) Select Save As…

   b) Select Rendered image in Output Mode.

   c) Click Create VRT and leave Format to GTiff.

   d) Use Browse to choose the path and name of directory that you use in Save as. You can create there.
   [You will need to create a directory to store the output file(s), in my case pflsc9_clipped]

   e) Verify that in CRS to you have selected your UTM zone.

   f) Uncheck Add saved file to map. No change to Extent.

   g) In "Resolution (current: layer)" click Columns.

   h) Put the number of tiles that have your scenery multiplied for your resolution. For example, if scenery has 10 tiles in east-west direction and 14 in north-south. In low resolution scenery, choose 1024 to test the method. 10x1024 = 10240 (left input->Columns) 14x1024 =14336 (right input→Rows)
   [In my case there were 9 tiles, 3 in each direction for flsc1, wanted hi res.
   I chose (3 * 8192= 24576), have to be multiples of 1024]

   i) In VRT Tiles put the resolution that you desire.
   [In my case 8192]

   j) Click OK. When this process is done, you have a lot of tiles. Only need convert tiff to BMP and rename files to import to Condor.
   [THIS did take several minutes, be patient I did get a partial "Saving Raster" box, nothing seemed to be happening for a while… CRASHED HERE ON 3x3, could not proceed. See Appendix for attempted workaround to create only 3 tiles (1 column at a time).]

   k) You can close QGIS… (might want to save project)
   [The final output was two files in the pflsc1_clipped directory, A BIG TIFF
   `268,501,380 – pflsc1_clipped.0.tif`
   `      2698 – pflsc1_clipped.vrt`
   7.   Open <u>Gimp or Photoshop</u> to convert Tiff to BMP
   [I used GIMP, very simple, free download]

There are many way to convert tiff to BMP. I prefer patch way. There are many examples in web. One of this is https://www.youtube.com/watch?v=TIaca4T9hQs
If you prefer you can touch color too.

Another way is using a program like BulkImageConverter

[Got some warnings when opening in GIMP, but looked okay, out of bounds checkerboxes near some corners

8. Using your imagination to rename file. I left some clues in Appendix I . Search about .bat files.

   First time I made 5x14 scenery, one by one, by hand, using F2 in explorer

9. Move all tiles to \Condor2\Landscapes\Scenery_name\Working\Terragen\Textures directory
   [Just one tile, rename to 0000.bmp]

10. Open Landscape Editor
    a) Select SceneryName from drop down menu
    b) Tools -> Import tile size textures
    c) File -> Export flightplanner map
    d) File -> Export forest map
    e) File -> Export thermal map
    f) File → Export the forest and terrain hashes
    g) File -> Export textures to DDS (this may take several hours)
       [When asked for non-existing, say NO – recreate everything, took a few minutes]
    h) Tools -> Check for missing files

Save landscape and take a Condor test flight on your new photo-realistic scenery :o)

FINISHING TOUCHES....

After the landscape is created, you can zip up the landscape directory, but you can leave out "Working" to save a lot of space:

```
0        Airports/
0        Images/
1.2M     HeightMaps/
4.1M     ForestMaps/
43M      Textures/
465M     Working/
```

Adding the Dansville Airport, make sure to convert feet to meters, e.g
660 elevation = 200 meters
3500' runway = 1066 meters
100' width = 30 meters

Also discovered the actual runway heading is 312 to line up in condor.
Had located airport using this LAT/LON :   42.570530 / -77.713272

It was showing about 50' offset to right of 32, wanted to move it into grass on right of the 32, about 150 feet.
Changed LON to: -77.712502

APPENDIX ON PHOTO CONVERSION created by Luis Briones

The below is needed for large sceneries, more than 1 tile. In the test flsc scenery I created only 1 tile and the .bmp was called 0000.bmp.

Gets more complicated with more tiles!

Appendix I

QGIS named files from zero using the name of directory where you put. E.g. test.0.tif, test.1.tif, …

Row	Columns									
	1	2	3	4	5	6	7	8	9	10
1	0	1	2	3	4	5	6	7	8	9
2	10	11	12	13	14	15	16	17	18	19
3	20	21	22	23	24	25	26	27	28	29
4	30	31	32	33	34	35	36	37	38	39
5	40	41	42	43	44	45	46	47	48	49
6	50	51	52	53	54	55	56	57	58	59
7	60	61	62	63	64	65	66	67	68	69
8	70	71	72	73	74	75	76	77	78	79
9	80	81	82	83	84	85	86	87	88	89
10	90	91	92	93	94	95	96	97	98	99
11	100	101	102	103	104	105	106	107	108	109
12	110	111	112	113	114	115	116	117	118	119
13	120	121	122	123	124	125	126	127	128	129
14	130	131	132	133	134	135	136	137	138	139

In the table before you can see the order of the files to made my 10 x 14 scenery.

Condor use other order as you can see in the following table:

Slice 9	Slice 8	Slice 7	Slice 6	Slice 5	Slice 4	Slice 3	Slice 2	Slice 1	Slice 0
0913	0813	0713	0613	0513	0413	0313	0213	0113	0013
0912	0812	0712	0612	0512	0412	0312	0212	0112	0012
0911	0811	0711	0611	0511	0411	0311	0211	0111	0011
0910	0810	0710	0610	0510	0410	0310	0210	0110	0010
0909	0809	0709	0609	0509	0409	0309	0209	0109	0009
0908	0808	0708	0608	0508	0408	0308	0208	0108	0008
0907	0807	0707	0607	0507	0407	0307	0207	0107	0007
0906	0806	0706	0606	0506	0406	0306	0206	0106	0006
0905	0805	0705	0605	0505	0405	0305	0205	0105	0005

0904	0804	0704	0604	0504	0404	0304	0204	0104	0004
0903	0803	0703	0603	0503	0403	0303	0203	0103	0003
0902	0802	0702	0602	0502	0402	0302	0202	0102	0002
0901	0801	0701	0601	0501	0401	0301	0201	0101	0001
0900	0800	0700	0600	0500	0400	0300	0200	0100	0000

With some work, I can make an excel table like this follow Tom Berry's spreadsheet method:

	Desired scenery size in terragens				
1					
2	**Width**	**Height**			
3	**10**	**14**			
...					
7	**Col Y**	**Row x**	**Condor**	**QGIS**	**Order**
8	**1**	**1**	**0913**	**test.0**	**copy test.0.bmp ..\FinalBMP\0913.bmp**
9	**1**	**2**	**0912**	**test.10**	**copy test.10.bmp ..\FinalBMP\0912.bmp**
10	**1**	**3**	**0911**	**test.20**	**copy test.20.bmp ..\FinalBMP\0911.bmp**
11	**1**	**4**	**0910**	**test.30**	**copy test.30.bmp ..\FinalBMP\0910.bmp**
12	**1**	**5**	**0909**	**test.40**	**copy test.40.bmp ..\FinalBMP\0909.bmp**
...					
	10	**11**	**0003**	**test.109**	**copy test.109.bmp ..\FinalBMP\0003.bmp**
	10	**12**	**0002**	**test.119**	**copy test.119.bmp ..\FinalBMP\0002.bmp**
	10	**13**	**0001**	**test.129**	**copy test.129.bmp ..\FinalBMP\0001.bmp**
	10	**14**	**0000**	**test.139**	**copy test.139.bmp ..\FinalBMP\0000.bmp**

I put the values of Col and Row by hand using copy and paste. To made the other thing I used the concatenate order. First time that I use it.

Condor Value:
=CONCATENATE(0,A3-A8,IF(B3-B8> 9,B3-B8,CONCATENATE(0,B3-B8)))

QGIS Value:
=CONCATENATE(F3,".",(B8-1)*10+(A8-1))

Order Value:
=CONCATENATE("copy ",D8,".bmp"," ..",F1,"\",C8,".bmp")

F1 = test

APPENDIX – Photo Scenery using less tiles.

In the original attempt above, all went well till I tried to create the photo scenery for 3x3 tiles, QGIS kept crashing, decided to try just one column at a time (3 tiles), needed to get the coordinates. Went back to UTM tools with the full extent, see below:

Then I clicked on the "Scenery Parameters" and changed Tiles easting to 1, this gave me what I wanted. Saved calibration9a.csv. So the lat/lon are:

```
Upper/Top Left (unchanged): 42.878662130 , -77.9081731222263

Lower/Bottom Right: 42.263639795,  -77.600401726
```

– diffs in normal steps, when opening QGIS I just added 9_1-1, 9_1-2, 9_1-3 (they seemed to be the far left column, starting at the top)

Columns: 8192 – Rows 24576

Tiles: 8192   8192