Layer #6 - How to add a bunch of trees   (kenventions 9/04/18)

Process Overview

1) use the FSET tool to generate a bmp image of the ~10nm x ~10nm area that you want to cultivate with matching FS2 trees

2) import that bmp file info ScenProc and use the texture filter option to "teach" the filter what areas of the bmp image are trees

3) then you save the filter setting and run some commands on that file to create a file with the coordinates of every single tree (shoot for <800,000 trees)

4) then you take the coordinates file and run a few more commands to plant a tree at every coordinate and it outputs your new trees toc file

5) then you move that toc file to your airport folder under PLACES and update the airport tsc file to use your new toc file - then go for a test flight!

Step 1) Details

Download and install FSET using the RELIEF LINK on this page - http://www.f-bmpl.com/index.php/faites-le-vous-meme/209-2-installation-de-fsearthtiles-1-3

Then open FSET and locate your airport area to populate with trees, match the options below including Download Resolution = 2, then click START to download the tiles and generate the large BMP file (may take a few minutes). TIP - you can edit the FSET ini file to save your file paths and option preferences.
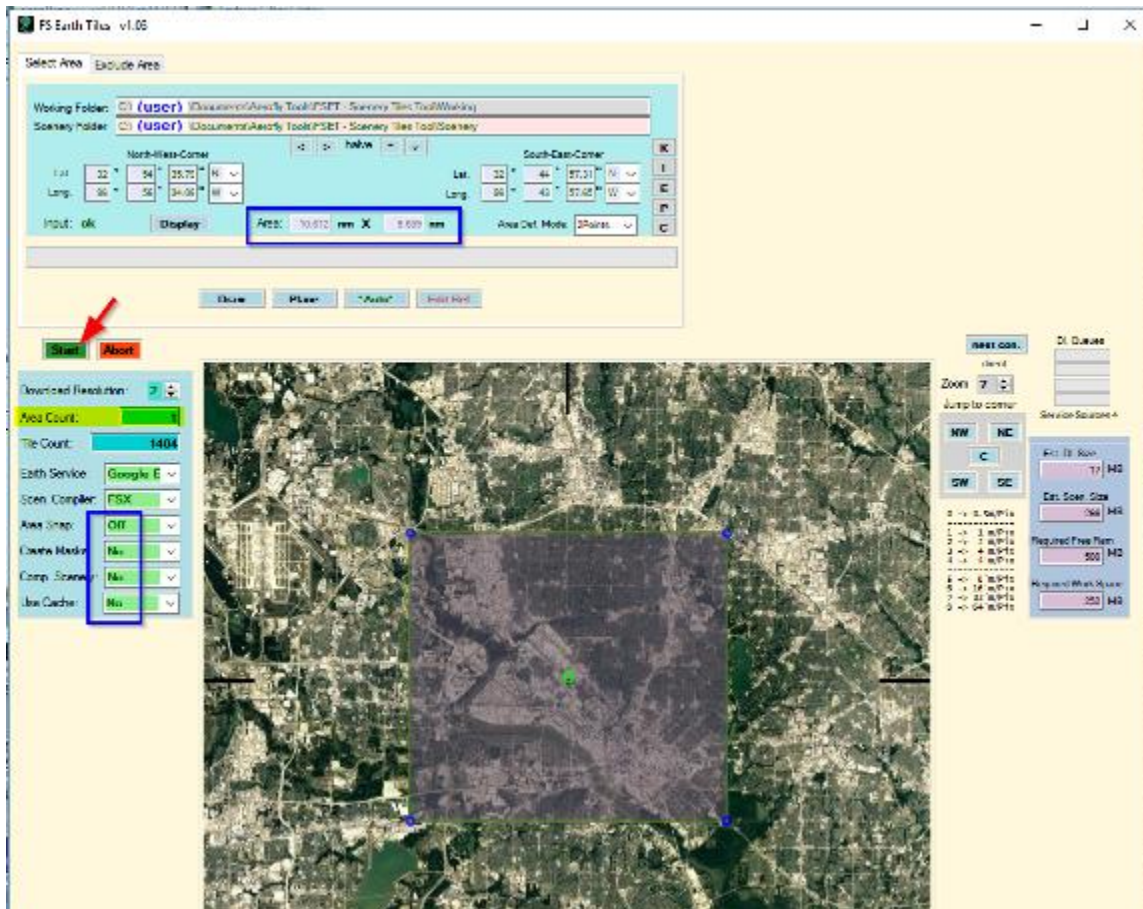
Here are the resulting 2 files of interest (don't re-locate them) ...
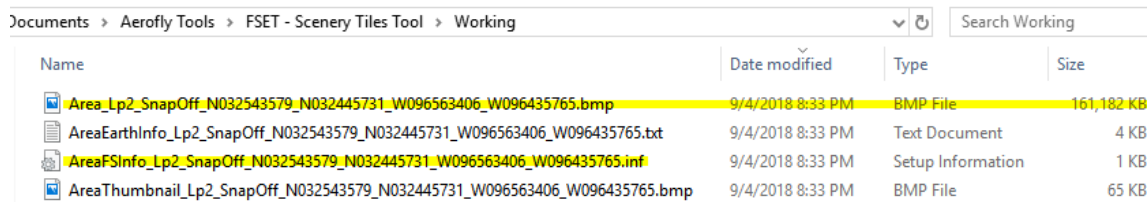
Step 2) Details

Download and install the latest development release of ScenProc from https://www.scenerydesign.org/development-releases/ .

Open ScenProc and select TOOLS then TEXTURE FILTER EDITOR.

Inside the new window select ADD IMAGE and select the large BMP file from the FSET WORKING directory (may take a couple of minutes to load).

Adjust the options on the left to match the highlighted selections below then center your BMP image using the sliders on the right & bottom.

Now start left-clicking on a few trees you see, using the sliders to explore other sections on the BMP image. After you've clicked on 30-40 trees, click the DETECT option at the top to see what other trees SCENPROC can find that match your 30-40 trees (the DETECT process can take several minutes).
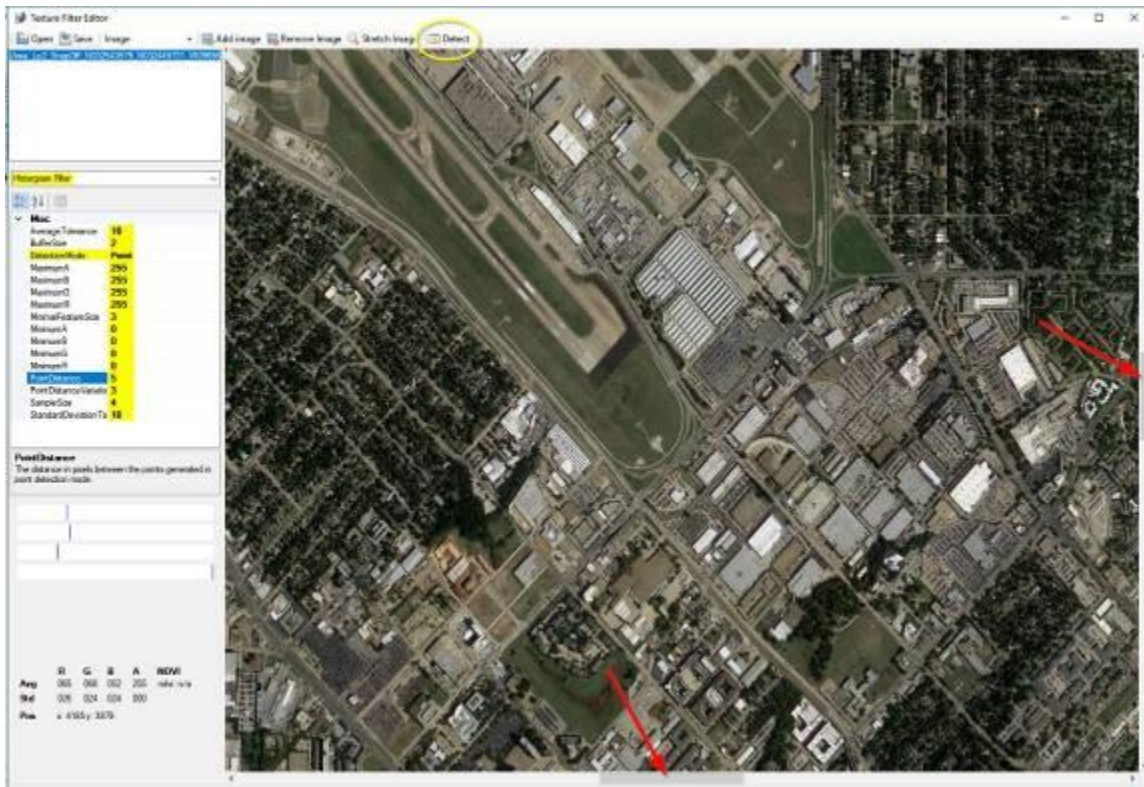
If the resulting image detects trees in the wrong places (near runways, in lakes, etc), right-click those red spots to ignore those areas/colors then click DETECT again.

Continue scanning different areas of your BMP image left-clicking any missed trees and right-clicking any bad red spots that should not be trees, then run DETECT again until the resulting tree map is acceptable.

If you accidentally left-clicked instead of right or visa-versa, start over by toggling the filter option to NDVI then back to Historgram.

Hit the SAVE button to save your file in the WORKING folder with a name like KDAL-trees.tfc

Step 3) Details

Click on the other ScenProc window and copy and paste the code below into the top blank section

```
# enter the path and file name of the inf file that was created with your BMP file
ImportINF|C:\(User)\Documents\Aerofly Tools\FSET - Scenery Tiles
Tool\Working\AreaFSInfo_Lp1_SnapOff_N033023161_N032543051_W096532391_W096455773.inf

# don't know if the next line is needed for FS2
SplitGrid|0.25|*|building="*"

# enter the path and file name of the tfc file you just saved
DetectFeatures|FTYPE="RASTER"|C:\(User)\Documents\Aerofly Tools\FSET - Scenery
Tiles Tool\Working\KDAL-trees.tfc|String;veg|trees|NONE

# I think this line is needed due to the SplitGrid command above
MergeGrid

# enter the path and file name of the resulting shp file
ExportOGR|FTYPE="POINT"|ESRI Shapefile|C:\(User)\Documents\Aerofly Tools\FSET -
Scenery Tiles Tool\Working\KDAL-trees.shp|woodland
```
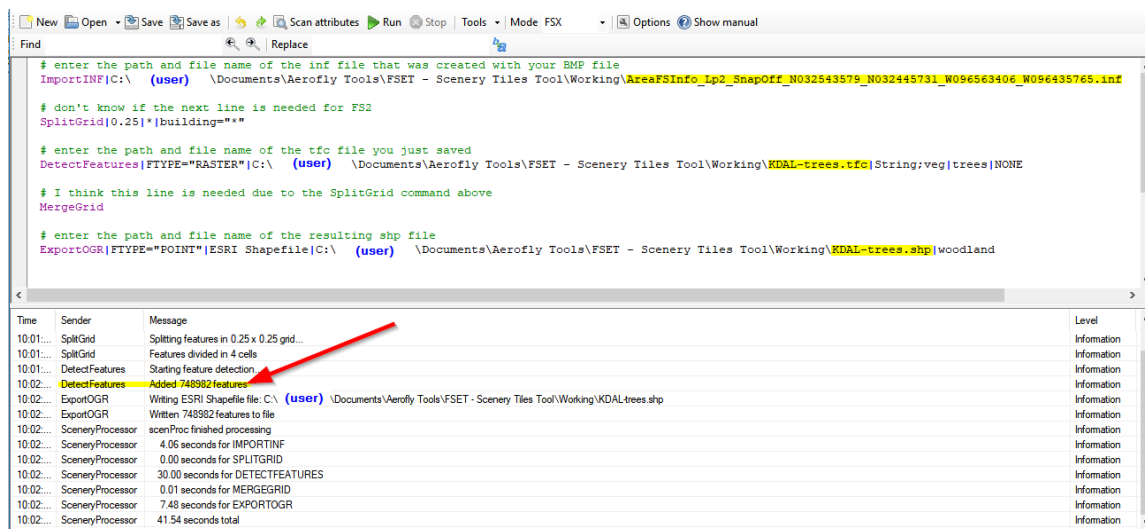

The lower portion of the window will display error messages or processing info.

After you have resolved any error messages, SAVE the file so you can use it as a SHP SCRIPT template for other airports.

Click RUN and ScenProc will detect the trees and save the coordinates of each one in a shp file (3 other extra files will be created).

Move these 4 files to a DATA folder in the WORKING folder.

If ScenProc generated more than 1M features, you may notice gaps in your cultivation. To reduce the features generated, increase the PointDistance setting (increases the space between trees) under the Historgram Filter options and re-run DETECT again in Step 2).

Step 4) Details

Now replace the lines of code above by copying and pasting the line below (or open your TOC template file if you saved one):

```
# enter the path and file name of the shp file that was just generated
ImportOGR|C:\(user)\Documents\Aerofly Tools\FSET - Scenery Tiles
Tool\Working\data\KDAL-trees.shp|*|*|AUTODETECT

# this line generates a broadleaf tree for 80% of the tree coordinates with each
tree between 8 to 25 feet tall
CreateAF2Plant|FRAND >= 0.2|8;25|0|broadleaf|0

# this line generates a conifer tree for 20% of the tree coordinates with each tree
between 10 to 20 feet tall
CreateAF2Plant|FRAND < 0.2|10;20|0|conifer|0

# enter the path and file name of the resulting toc file
ExportTOC|C:\(user)\Documents\Aerofly Tools\FSET - Scenery Tiles
Tool\Working\data|KDAL-trees
```
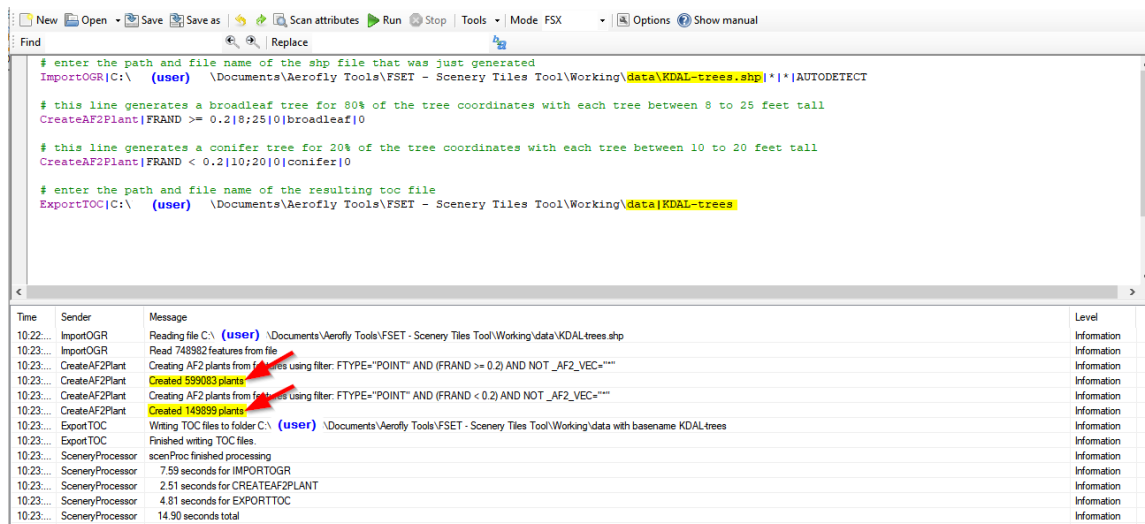
After you have resolved any error messages, SAVE the file so you can use it as a TOC SCRIPT template for other airports.

Click RUN and ScenProc will generate trees from the SHP coordinates file and save them in TOC file.

Step 5) Details

Move your new trees TOC file to your airport folder located under the PLACES folder.

Edit your airport TSC file using a program like Notepad++ to include the new trees TOC reference in the cultivation section at the end of the TSC file.

```
//////////////////////////////////////////////////////////////////////
//
// cultivation_files
//
// Add filename here if you have some cultivation
//
//////////////////////////////////////////////////////////////////////
<[list_tmsimulator_scenery_cultivation][cultivation_files][]
        <[tmsimulator_scenery_cultivation][element][0]
            <[string8][filename][KDAL-map]>  other cultivation file
            <[bool][auto_height][true]>
        >
        <[tmsimulator_scenery_cultivation][element][1]
            <[string8][filename][KDAL-trees]>
            <[bool][auto_height][true]>
        >
    >
>
>
```

Also increase the viewing/loading distance located at the top of the TSC file from the default 5000m radius to 50000m and then SAVE your modified TSC file.

```
<[file][][KDAL] //4
 <[tmsimulator_scenery_place][][]
    //////////////////////////////////////////////////////////////////////
    //
    // general information
    //
    //////////////////////////////////////////////////////////////////////
    <[string8]   [type]          [airport]>
    <[string8]   [sname]         [Love]>
    <[string8]   [lname]         [Dallas Love Field ]>
    <[string8]   [icao]          [KDAL]>
    <[string8]   [country]       [us]>
    <[tmvector2d][position]      [-96.85009480 32.84438747]>   //This is the distinctive reference point for your model
    <[float64]   [height]        [145.69]>
    <[float64]   [size]          [50000]>
    <[vector2_float64][tower_position][-96.85009211 32.84438972]>
    <[float64]   [tower_height]  [30.0]>
    <[bool]      [autoheight]    [true]>
    <[string8]   [coordinate_system][lonlat]>
```

Time for that test flight!

A big thanks to Arno for the DETECT feature of ScenProc that makes these trees possible!